DOCUMENT RESUME

ED 327 931 EA 022 576

AUTHOR	Tinzmann, Margaret Banker; And Others
TITLE	The Collaborative Classroom: Reconnecting Teachers and Learners, Video Conference 3. Restructuring To Promote Learning in America's Schools, A Guidebook.
INSTITUTION	North Central Regional Educational Lab., Elmhurst, IL.; Public Broadcasting Service, Washington, D.C.
SPONS AGENCY	Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE	90
CONTRACT	400-86-0004
NOTE	78p.; For other guidebooks in this nine-volume series, see EA 022 574-582.
AVAILABLE FROM	PBS Video, 1320 Braddock Place, Alexandria, VA 22314 and NCREL, 295 Emroy Ave., Elmhurst, IL 60126.
PUB TYPE	Guides - Non-Classroom Use (055)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Classroom Techniques; *Cooperative Learning; Elementary Secondary Education; Instructional Improvement; Interactive Video; Professional Development; *School Restructuring; Shared Resources and Services; Student Role; Teacher Role; Teacher Student Relationship; Teaching Methods; *Teleconferencing

ABSTRACT

The extension of the new thinking curriculum into the classroom suggests that the redefinition of learning requires a collaborative classroom. Provided in this third guidebook in a series of nine video conferences is an elaboration on the definition of classroom collaboration, a description of classroom characteristics and student and teacheer roles, a summary of relevant research, a discussion of issues related to instructional innovation, and a presentation of examples of collaborative teaching methods. Characteristics of a collaborative classroom include shared knowledge and authority among teachers and students, teachers as mediators, and heterogenous student groupings. Also included are pre- and post-conference activities, a program evaluation, essays and school-based activities highlighting teleconference topics, information about other video conferences in the series and computer forums, course credit information, a list of supplementary materials, 58 references and 3 video sources, and a list of 9 regional resources. Presenters' biographical information is given. (LMI)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED327931

RESTRUCTURING TO PROMOTE LEARNING IN AMERICA'S SCHOOLS

A GUIDEBOOK

3 The Collaborative Classroom: Reconnecting Teachers and Learners

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
✓ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY
M. Kroeger
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Presented by the

North Central Regional Educational Laboratory

and the

Public Broadcasting Service

EA 022 576

Use of This Guidebook

Guidebook Purposes

1. **Before** the video conference, the **Guidebook** provides pre-conference activities.
2. **After** the video conference, the **Guidebook** contains a post-conference activity.
3. The essay highlights topics discussed during the video conference. It is followed by two sets of activities: one set relates directly to the essay; the other set is school-based.
4. Finally, this **Guidebook** provides information about the remaining video conferences in the series, the computer forums, course credit, and supplementary materials that are available for this professional development program.

Instructions to the Site Facilitator

Pre-Conference Activities
(Allow 30 minutes.)

Before viewing the video conference:

ASK the participants to introduce themselves. If possible, have them form small groups or pairs.

ASK the participants to complete the **Pre-Conference Activities.** These activities are on page 4 and are identified by the hand/pencil symbol.

Post-Conference Activities
(Allow 30 minutes.)

After viewing the video conference:

ASK the participants to complete the **Post-Conference Activity**. This activity is on page 5 and is also marked by the hand/pencil symbol.

ADVISE participants that workshop activities have been included in this **Guidebook.** These activities may be completed in schools, state education agencies, or other educational facilities.

Video Conference 3

THE COLLABORATIVE CLASSROOM:

RECONNECTING TEACHERS AND LEARNERS

Written by:

Margaret Banker Tinzmann
Beau Fly Jones
Todd F. Fennimore
Jan Bakker
Carole Fine
Jean Pierce

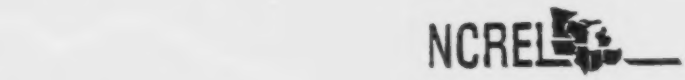
North Central Regional
Educational Laboratory

Guidebooks and videotapes of these series may be purchased from:

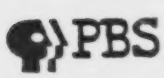
PBS Video
1320 Braddock Place
Alexandria, VA 22314
(703) 739-5038

Guidebooks and additional information are also available from:

North Central Regional Educational Laboratory
295 Emroy Avenue
Elmhurst, IL 60126
(708) 941-7677



The North Central Regional Educational Laboratory is a nonprofit organization devoted to supporting efforts of the educational community by bridging the gap between research and practice to provide effective instruction for all students. NCREL is primarily funded through the Office of Educational Research and Improvement of the U.S. Department of Education. NCREL and PBS have been presenting national video conferences since 1987.



The PBS Elementary/Secondary Service acquires and distributes high quality, K-12 instructional television programs; provides professional development for educators; delivers electronic and print information services for and about Public Television (PTV) and education; serves as a national advocate for the use of technologies; and tracks developments in national policy for the educational television community.

The PBS Adult Learning Service (ALS) offers college-credit television courses through local partnerships of public television stations and colleges. Since 1981 more than 1,500 colleges in cooperation with 300 stations have enrolled over one million students in ALS-distributed courses. In August 1988 ALS launched the PBS Adult Learning Satellite Service (ALSS) as a direct satellite service for higher education, offering a wide variety of programming.

© 1990 North Central Regional Educational Laboratory, 295 Emroy Avenue, Elmhurst, IL 60126

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means without permission.

This publication is based on work sponsored wholly or in part by the Office of Educational Research and Improvement, Department of Education, under Contract Number 400-86-0004. The content of this publication does not necessarily reflect the views of OERI, the Department of Education, or any other agency of the U.S. Government.

Acknowledgments

We give our deepest thanks to the following people who assisted us in our planning. NCREL takes full responsibility for the content of the program.

Advisory Board

Bruce Bolton	Principal, Greenfield Park Elementary School, Detroit, MI
Thomas Duffy	Indiana University, Bloomington, IN
Joseph Herrity	Iowa Department of Education, Des Moines, IA
Robert McClure	National Education Association, Washington, DC
Shirley McCune	Mid-continent Regional Educational Laboratory, Aurora, CO
Don Monroe	Superintendent, Winnetka Public Schools, Winnetka, IL
Paul Norton	Executive Director of Educational Communication Board, Wisconsin Public Broadcasting Center for Television & Radio, Madison, WI
Donna Ogle	National College of Education, Evanston, IL
William Pink	National College of Education, Evanston, IL
Luz Maria Serrano	Principal, Cleveland Junior High School, St. Paul, MN
Robert Stake	University of Illinois, Urbana-Champaign, IL
Olga Valcourt-Schwartz	Director, Bilingual Education, Milwaukee Public Schools, Milwaukee, WI
David Wilkinson	Indiana Department of Education, Indianapolis, IN
Diana Williams	Supervisor of Staff Development, Columbus Public Schools, Columbus, OH
Dorothy Wilson	Teacher, Dyett Middle School, Chicago, IL

Rural Review Group

Dwight Bode	Administrator Emeritus, Area Education Agency #10, Grantwood , IA
Kathleen Flanagan	Ashland University, Ashland, OH
Gordon Hoke	Professor Emeritus, University of Illinois, Urbana-Champaign, IL
Keigh Hubel	Southwest State University, Marshall, MN
Walter McIntire	University of Maine, Orono, ME
Chester Meisberger	Former Superintendent, Switzerland County School Corp., Vevay, IN
Donna Niday	Belmond Community High School, Belmond, IA
Roland Solberg	Cooperative Educational Services Agency #4, LaCrosse, WI
Henry Verberkmoes	Lake Linden-Hubbell School District, Lake Linden, MI
Robert L. Weinfurtner	Lincoln Intermediate Unit #12, New Oxford, PA

NCREL wishes to thank the teachers who have taken time from their busy schedules to participate in the videos.

Formative Field Review Group

William J. Attea	Superintendent, Glenview Public Schools, Glenview, IL
Jean Brownlee-Conyers	Director of Instruction, Glenview District #34, Glenview, IL
Jean Cameron	Director of Instruction & Human Resources Development, Elmhurst School District, Elmhurst, IL
Sara Clark	Teacher, Dawes School, Evanston, IL
Nancy Drexler	Staff Associate, The Regional Laboratory for Educational Improvement of the Northeast and Islands, Andover, MA
Larry Gavin	Teacher, Redwood Falls High School, Redwood Falls, MN
Henry A. Gmitro	Principal, Lyon School, Glenview, IL
Robert Golden	Resource Center Director, Hubbard Woods School, Winnetka, IL
John Hays	Principal, South Division High School, Milwaukee, WI
Debra A. Hill	Director of Curriculum, Community Consolidated School District #65, Evanston, IL
Linden Hill	Superintendent, Eastern Howard Community School Corp., Greentown, IN
Milton Honel	Principal, Field School, Elmhurst, IL
Judy Lechner	Principal, Samuel D. Huey School, Philadelphia, PA
Patricia A. Mitchell	Teacher, Walker School, Skokie, IL
Donald Monroe	Superintendent, Winnetka Public Schools, Winnetka, IL
Cynthia Smith-Jans	Teacher, Field School, Elmhurst, IL
Robert Rogers	Superintendent, Scott Morgan School District, Bluffs, IL
Olga Valcourt-Schwartz	Director, Bilingual Education, Milwaukee Public Schools, Milwaukee, WI
Dick Streedain	Principal, Hubbard Woods School, Winnetka, IL
Wyllys Terry	Staff Associate, The Regional Laboratory for Educational Improvement of the Northeast and Islands, Andover, MA
Loretta Thomas	Teacher, Guggenheim Elementary School, Chicago, IL
Barbara J. Tucker	Principal, Westbrook School, Glenview, IL
Warren K. Weber	Directory of Secondary Education, Council Bluffs Community School District, Council Bluffs, IA

Cooperating Agencies

American Association of School Administrators
American Federation of Teachers
Apple Computer Company
California Department of Education
DataAmerica
Illinois State Board of Education
Indiana Department of Education
Indiana University at Bloomington
International Business Machines
Iowa Department of Education
Michigan Department of Education
Minnesota Department of Education
National College of Education
National Computer Systems
National Education Association
National PTA
Northern Telecom, Incorporated
Ohio Department of Education
The Regional Laboratory for Educational Improvement of the Northeast and Islands
University of Wisconsin at Madison
Wisconsin Department of Public Instruction
Zaner-Bloser, Incorporated

Video Series Project Team

Beau Fly Jones, Project Director
Jan Bakker, Editor
Debra Beauprez, Program Assistant
Julie Casiello, Desktop Publishing
Todd Fennimore, Writer
Lawrence Friedman, Rural Director
Judson Hixson, Preservice Director
Marianne Kroeger, Editor
Annette Mallory, Video Production Coord.
Cheryl May, Production Center Manager
Lenaya Raack, **Guidebook** Coord., Editor
Margaret Banker Tinzmann, Writer
Beverly Walker, Urban Director
Donna Wagner, Internal Reviewer
June Yang, Video Production Coord.

Table of Contents

Page

Overview: Professional Development Series 1

Video Conference Activities (for the Site Facilitator: ✍)

Pre-Conference Activities 4
Post-Conference Activity 5

Essay: The Collaborative Classroom: Reconnecting Teachers and Learners

What Is the Collaborative Classroom? 7
What Is the Research Base for Collaborative Learning? 19
What Are Other Examples of Collaborative Instruction? 27

Essay Activities

What Is the Collaborative Classroom? 37
What Is the Research Base for Collaborative Learning? 41
What Are Other Examples of Collaborative Instruction? 43

School-Based Activities

Activity 1: Preparing for Change 46
Activity 2: Getting Started 48
Activity 3: Continuing to Grow 52

Additional Information

Program Descriptions 54
Computer Forums 56
Materials 58
Course Credit Information 59
Local Involvement 59

References and Resources

Bibliography 61
Video Sources 64
Presenters' Biographical Information 65
Regional Resources 67

Order Form 68

Selected Readings ☆

OVERVIEW: PROFESSIONAL DEVELOPMENT SERIES

NCREL's Goal: A Forum on Restructuring Schools

The concept of educational laboratories emerged during the War on Poverty in the 1960s. Education was viewed as crucial to anti-poverty efforts, but the inability of policymakers, researchers, and practitioners to communicate with one another about effective strategies and practices was a significant obstacle to substantial educational improvement. One of the reasons Congress created the laboratories was to promote dialogue about promising practices among these diverse actors. Today there are nine federally funded regional educational laboratories in the country working to help educators and policymakers improve the quality of education by applying research findings to educational practice.

NCREL sees telecommunications as an effective vehicle for creating a forum on restructuring schools that brings together practitioners, policymakers, and researchers so that they can enrich each other's perspectives. Telecommunications can bridge geographic separations and create networks of common stakeholders in restructuring efforts.

However, the satellite transmission itself does not create a forum. How the telecommunications event is structured is a crucial factor in determining the effectiveness of the forum. This professional development series was designed to:

- Focus the movement for restructuring schools on the fundamental issues of schooling: learning, curriculum, instruction, and assessment
- Provide opportunities for participants to interact with researchers, teachers and administrators, and policymakers in a structured thinking process
- Help apply new ideas and develop local expertise
- Promote a broad range of local and electronic networking
- Help educators prepare students to meet the new roles and opportunities of a profoundly changed and changing society
- Provide a framework for organizing what research says about fundamental change

Components of the Professional Development Series

Four components of this professional development series enhance the potential for creating a national forum:

1. Video conferences
2. Computer forums
3. Print materials
4. College credit

See Additional Information, page 53.

Video Conference Titles and Dates (1990)

1. The New Definition of Learning: The First Step for School Reform (February 14)
2. The Thinking Curriculum (March 21)
3. The Collaborative Classroom: Reconnecting Teachers and Learners (April 26)
4. Multidimensional Assessment: Strategies for Schools (May 24)
5. Schools as Learning Communities (June 6)
6. Many Roads to Fundamental Reform: Getting Started (June 20)
7. Many Roads to Fundamental Reform: Continuing to Grow (July 11)
8. The Meaning of Staff Development in the 21st Century (July 25)
9. Reconnecting Students at Risk to the Learning Process (August 8)

Content

The core message of the video series is this: A fundamental restructuring of schools should be driven by a new vision of learning, a vision which transforms all dimensions of schooling. Thus, the first video conference focuses on the new research on learning. The next three video conferences discuss the cognitive and social environments that can be created in classrooms to support meaningful learning. The last five video conferences explore changes that can be made in the social organization of schools to support these classrooms.

VIDEO CONFERENCE ACTIVITIES

Pre-Conference Activities

Post-Conference Activity

Pre-Conference Activities

INSTRUCTIONS TO SITE FACILITATOR:

ASK the audience to form groups of 3 to 5 people. GUIDE them through the Pre-Conference Activities.

Activity 1: What is the video conference about?
(Allow 15 minutes.)

SURVEY the essay, activities, and biographies in this guide to PREDICT what you will learn in this video conference. WRITE your predictions below. PUT an asterisk next to those topics about which you already have some knowledge. SHARE your predictions and what you know about topics with a partner or group if possible.

Activity 2: What are your goals for viewing this video conference?
(Allow 10 minutes.)

WRITE your goals for viewing Video Conference 3. Relate them to your goals for Video Conference 1 (The New Definition of Learning: The First Step for School Reform) and Video Conference 2 (The Thinking Curriculum); that is, what are your goals for this conference and your goals for the series as a whole.

Post-Conference Activity

INSTRUCTIONS TO SITE FACILITATOR:

ASK the audience to form groups of 3 to 5 people. GUIDE them through the Post-Conference Activity.

Activity: How can this video conference help you develop a collaborative classroom? (Allow 15 minutes.)

1. How has this video conference contributed to your understanding about collaborative classrooms? To answer this question, you and your group should IDENTIFY at least five important points made in this video conference.

2. What new insights did you gain into those aspects of the collaborative classroom where you had some prior knowledge?

3. How does Video Conference 3 fit with the ideas in the first two conferences?

Essay

THE COLLABORATIVE CLASSROOM:

RECONNECTING TEACHERS AND LEARNERS

What Is the Collaborative Classroom?

What Is the Research Base for Collaborative Learning?

What Are Other Examples of Collaborative Instruction?

What Is the Collaborative Classroom?

New Learning and Thinking Curricula Require Collaboration

In **Guidebook 1**, we explored a "new" vision of learning and suggested four characteristics of successful learners: They are knowledgeable, self-determined, strategic, and empathetic thinkers. Research indicates successful learning also involves an interaction of the learner, the materials, the teacher, and the context. Applying this research, new guidelines in the major content areas stress thinking. **Guidebook 2** describes these new guidelines and provides four characteristics of "a thinking curriculum" that cut across content areas. The chief characteristic of a thinking curriculum is the dual agenda of content and process for all students. Characteristics that derive from this agenda include in-depth learning; involving students in real-world, relevant tasks; engaging students in holistic tasks from kindergarten through high school; and utilizing students' prior knowledge.

Effective communication and collaboration are essential to becoming a successful learner. It is primarily through dialogue and examining different perspectives that students become knowledgeable, strategic, self-determined, and emphathetic. Moreover, involving students in real-world tasks and linking new information to prior knowledge requires effective communication and collaboration among teachers, students, and others. Indeed, it is through dialogue and interaction that curriculum objectives come alive. Collaborative learning affords students enormous advantages not available from more traditional instruction because a group—whether it be the whole class or a learning group within the class—can accomplish meaningful learning and solve problems better than any individual can alone.

This focus on the collective knowledge and thinking of the group changes the roles of students and teachers and the way they interact in the classroom. Significantly, a groundswell of interest exists among practitioners to involve students in collaboration in classrooms at all grade levels.

The purpose of this **Guidebook** is to elaborate what classroom collaboration means so that this grass-roots movement can continue to grow and flourish. We will describe characteristics of these classrooms and student and teacher roles, summarize relevant research, address some issues related to changing instruction, and give examples of a variety of teaching methods and practices that embody these characteristics.

Characteristics of a Collaborative Classroom

Collaborative classrooms seem to have four general characteristics. The first two capture changing relationships between teachers and students. The third characterizes teachers' new approaches to instruction. The fourth addresses the composition of a collaborative classroom.

1. Shared knowledge among teachers and students

In traditional classrooms, the dominant metaphor for teaching is the teacher as information giver; knowledge flows only one way from teacher to student. In contrast, the metaphor for collaborative classrooms is shared knowledge. The teacher has vital knowledge about content, skills, and instruction, and still provides that information to students. However, collaborative teachers also value and build upon the knowledge, personal experiences, language, strategies, and culture that students bring to the learning situation.

Consider a lesson on insect-eating plants, for example. Few students, and perhaps few teachers, are likely to have direct knowledge about such plants. Thus, when those students who do have relevant experiences are given an opportunity to share them, the whole class is enriched. Moreover, when students see that their experiences and knowledge are valued, they are motivated to listen and learn in new ways, and they are more likely to make important connections between their own learning and "school" learning. They become empowered. This same phenomenon occurs when the knowledge parents and other community members have is valued and used within the school.

Additionally, complex thinking about difficult problems, such as world hunger, begs for multiple ideas about causes, implications, and potential solutions. In fact, nearly all of the new curricular goals are of this nature—for example, mathematical problem-solving—as are new requirements to teach topics such as AIDS. They require multiple ways to represent and solve problems and many perspectives on issues.

2. Shared authority among teachers and students

In collaborative classrooms, teachers share authority with students in very specific ways. In most traditional classrooms, the teacher is largely, if not exclusively, responsible for setting goals, designing learning tasks, and assessing what is learned.

Collaborative teachers differ in that they invite students to set specific goals within the framework of what is being taught, provide options for activities and assignments that capture different student interests and goals, and encourage students to assess what they learn. Collaborative teachers encourage students' use of their own knowledge, ensure that students share their knowledge and their learning strategies, treat each other respectfully, and focus on high levels of understanding. They help students listen to diverse opinions, support knowledge claims with evidence, engage in critical and creative thinking, and participate in open and meaningful dialogue.

Suppose, for example, the students have just read a chapter on colonial America and are required to prepare a product on the topic. While a more traditional teacher might ask all students to write a ten-page essay, the collaborative teacher might ask students to define the product themselves. Some could plan a videotape; some could dramatize events in colonial America; others could investigate original sources that support or do not support the textbook chapter and draw comparisons among them; and some could write a ten-page paper. The point here is twofold: (1) students have opportunities to ask and investigate questions of personal interest, and (2) they have a voice in the decision-making process. These opportunities are essential for both self-regulated learning and motivation.

3. Teachers as mediators

As knowledge and authority are shared among teachers and students, the role of the teacher increasingly emphasizes mediated learning. Successful mediation helps students connect new information to their experiences and to learning in other areas, helps students figure out what to do when they are stumped, and helps them learn how to learn. Above all, the teacher as mediator adjusts the level of information and support so as to maximize the ability to take responsibility for learning. This characteristic of collaborative classrooms is so important, we devote a whole section to it below.

4. Heterogeneous groupings of students

The perspectives, experiences, and backgrounds of all students are important for enriching learning in the classroom. As learning beyond the classroom increasingly requires understanding diverse perspectives, it is essential to provide students opportunities to do this in multiple contexts in schools. In collaborative classrooms where students are engaged in a thinking curriculum, everyone learns from everyone else, and no student is deprived of this opportunity for making contributions and appreciating the contributions of others.

Thus, a critical characteristic of collaborative classrooms is that students are not segregated according to supposed ability, achievement, interests, or any other characteristic. Segregation seriously weakens collaboration and impoverishes the classroom by depriving all students of opportunities to learn from and with each other. Students we might label unsuccessful in a traditional classroom learn from "brighter" students, but, more importantly, the so-called brighter students have just as much to learn from their more average peers. Teachers beginning to teach collaboratively often express delight when they observe the insights revealed by their supposedly weaker students.

Thus, shared knowledge and authority, mediated learning, and heterogenous groups of students are essential characteristics of collaborative classrooms. These characteristics, which are elaborated below, necessitate new roles for teachers and students that lead to interactions different from those in more traditional classrooms.

Teacher Roles in a Collaborative Classroom

Across this nation, teachers are defining their roles in terms of mediating learning through dialogue and collaboration. While mediation has been defined in different ways by Reuven Feuerstein, Lev Vygotsky and others, we define mediation here as facilitating, modeling, and coaching. Most teachers engage in these practices from time to time. What is important here is that these behaviors (1) drive instruction in collaborative classrooms, and (2) have specific purposes in collaborative contexts.

Facilitator Facilitating involves creating rich environments and activities for linking new information to prior knowledge, providing opportunities for collaborative work and problem solving, and offering students a multiplicity of authentic learning tasks. This may first involve attention to the physical environment. For example, teachers move desks so that all students can see each other, thus establishing a setting that promotes true discussion. Teacher may also wish to move their desks from the front of the room to a less prominent space.

Additionally, teachers may structure the resources in the classroom to provide a diversity of genres and perspectives, to use and build upon cultural artifacts from the students' homes and communities, and to organize various learning activities. Thus, a collaborative classroom often has a multiplicity of projects or activity centers using everyday objects for representing numerical information in meaningful ways and for conducting experiments that solve real problems. These classrooms also boast a rich variety of magazines, journals, newspapers, audiotapes, and videos which

allow students to experience and use diverse media for communicating ideas. In Video Conference 1, for example, students were shown investigating science concepts using everyday materials, such as paper and straw, found in their neighborhoods.

Facilitating in collaborative classrooms also involves people. Inside the classroom, students are organized into hetergeneous groups with roles such as Team Leader, Encourager, Reteller, Recorder, and Spokesperson. (See Elizabeth Cohen's work for further elaboration.) Additionally, collaborative teachers work to involve parents and community members. Examples are: A workshop center in New York invites parents to come and experience the thinking processes involved in conducting experiments using everyday objects so that they can provide such learning experiences at home (Video Conference 1); teachers in Tucson involve parents and the community in academic tasks their students engage in (Video Conference 3), and rural students in Colorado perform community services such as producing a local newspaper (Video Conference 5).

Another way that teachers facilitate collaborative learning is to establish classrooms with diverse and flexible social structures that promote the sort of classroom behavior they deem appropriate for communication and collaboration among students. These structures are rules and standards of behaviors, fulfilling several functions in group interaction, and influencing group attitudes. Particular rules depend, of course, on the classroom context. Thus, teachers often develop them collaboratively with students and review or change them as needed. Examples of rules are giving all members a chance to participate, valuing others' comments, and arguing against (or for) ideas rather than people. Examples of group functions are: asking for information, clarifying, summarizing, encouraging, and relieving tension. To facilitate high quality group interaction, teachers may need to teach, and students may need to practice, rules and functions for group interaction.

Finally, teachers facilitate collaborative learning by creating learning tasks that encourage diversity, but which aim at high standards of performance for all students. These tasks involve students in high-level thought processes such as decision making and problem solving that are best accomplished in collaboration. These tasks enable students to make connections to real-world objects, events, and situations in their own and an expanded world, and tap their diverse perspectives and experiences. Learning tasks foster students' confidence and at the same time, are appropriately challenging.

Model Modeling has been emphasized by many local and state guidelines as sharing one's thinking and demonstrating or explaining something. However, in collaborative classrooms, modeling serves to share with students not only what one is thinking about the content to be learned, but also the process of communication and collaborative learning. Modeling may involve thinking aloud (sharing thoughts about something) or demonstrating (showing students how to do something in a step-by-step fashion).

In terms of content, teachers might verbalize the thinking processes they use to make a prediction about a scientific experiment, to summarize ideas in a passage, to figure out the meaning of an unfamiliar word, to represent and solve a problem, to organize complicated information, and so on. Just as important, they would also think aloud about their doubts and uncertainties. This type of metacognitive thinking and thinking aloud when things do not go smoothly is invaluable in helping students understand that learning requires effort and is often difficult for people.

With respect to group process, teachers may share their thinking about the various roles, rules, and relationships in collaborative classrooms. Consider leadership, for example. A teacher might model what he or she thinks about such questions as how to manage the group's time or how to achieve consensus. Similarly, showing students how to think through tough group situations and problems of communication is as invaluable as modeling how to plan an approach to an academic problem, monitoring its progress, and assessing what was learned.

A major challenge in mediating learning is to determine when it is appropriate to model by thinking aloud and when it is useful to model by demonstrating. If a teacher is certain that students have little experience with, say, a mathematical procedure, then it may be appropriate to demonstrate it before students engage in a learning task. (This is not to say that the teacher assumes or states that there is only one way to perform the procedure. It is also important to allow for individual variations in application.) If, on the other hand, the teacher believes students can come up with the procedure themselves, then he or she might elect to ask the students to model how they solved the problem; alternatively the teacher could give students hints or cues. (See below.)

Coach Coaching involves giving hints or cues, providing feedback, redirecting students' efforts, and helping them use a strategy. A major principle of coaching is to provide the right amount of help when students need it—neither too much nor too little—so that students retain as much responsibility as possible for their own learning.

For example, a collaborative group of junior high students worked on the economic development of several nations. They accumulated a lot of information about the countries and decided that the best way to present it was to compare the countries. But they were stymied as to how to organize the information so they could write about it in a paper, the product they chose to produce. Their teacher hinted that they use a matrix—a graphic organizer they had learned—to organize their information. When the group finished the matrix, the teacher gave them feedback. In so doing, he did not tell them it was right or wrong, but asked questions that helped them verbalize their reasons for completing the matrix as they did. The principle the teacher followed was to coach enough so that students could continue to learn by drawing on the ideas of other group members.

Student Roles in a Collaborative Classroom

Students also assume new roles in the collaborative classroom. Their major roles are collaborator and active participator. It is useful to think how these new roles influence the processes and activities students conduct before, during, and after learning. For example, before learning, students set goals and plan learning tasks; during learning, they work together to accomplish tasks and monitor their progress; and after learning, they assess their performance and plan for future learning. As mediator, the teacher helps students fulfill their new roles.

Goal setting Students prepare for learning in many ways. Especially important is goal setting, a critical process that helps guide many other before-, during-, and and after-learning activities. Although teachers still set goals for students, they often provide students with choices. When students collaborate, they should talk about their goals. For example, one teacher asked students to set goals for a unit on garbage. In one group, a student wanted to find out if garbage is a problem, another wanted to know what happens to garbage, a third wanted to know what is being done to solve the problem of garbage. The fourth member could not think of a goal, but agreed that the first three were important and adopted them. These students became more actively involved in the unit after their discussion about goals, and at the end of the unit, could better evaluate whether they had attained them.

Designing Learning Tasks and Monitoring While teachers plan general learning tasks, for example, to produce a product to illustrate a concept, historical sequence, personal experience, and so on, students assume much more responsibility in a collaborative classroom for planning their own learning activities. Ideally, these plans derive in part from goals students set for themselves. Thoughtful planning by the teacher ensures that students can work together to attain their own goals and capitalize on their own abilities, knowledge, and strategies within the parameters set by the teacher. Students are more likely to engage in these tasks with more purpose and interest than in traditional classrooms.

Self-regulated learning is important in collaborative classrooms. Students learn to take responsibility for monitoring, adjusting, self-questioning, and questioning each other. Such self-regulating activities are critical for students to learn today, and they are much better learned within a group that shares responsibility for learning. Monitoring is checking one's progress toward goals. Adjusting refers to changes students make, based on monitoring, in what they are doing to reach their goals. For example, a group of students decided that the sources of information on the Civil War they selected initially were not as useful as they had hoped, so they selected new materials. Another group judged that the paper they had planned to write would not accomplish what they thought it would the way they had organized it, so they planned a new paper.

Students can further develop their self-regulating abilities when each group shares its ideas with other groups and gets feedback from them. For example, in the first video conference, elementary students were shown collaborating in small groups to define and represent math problems. Working in small groups, the children determined what was being asked in story problems and thought of ways to solve the problems. Then each group shared its ideas with the whole class. Members of the class commented on the ideas. As students developed problem-solving skills with feedback from other groups, they learned more about regulating their own learning which they could use in the future.

Assessment While teachers have assumed the primary responsibility for assessing students' performance in the past, collaborative classrooms view assessment much more broadly. That is, a major goal is to guide students from the earliest school years to evaluate their own learning. Thus, a new responsibility is self-assessment, a capability that is fostered as students assess group work.

Self-assessment is intimately related to ongoing monitoring of one's progress toward achievement of learning goals. In a collaborative classroom, assessment means more than just assigning a grade. It means evaluating whether one has learned what one intended to learn, the effectiveness of learning strategies, the quality of products and decisions about which products reflect one's best work, the usefulness of the materials used in a task, and whether future learning is needed and how that learning might be realized.

Collaborative classrooms are natural places in which to learn self-assessment. And because decisions about materials and group performance are shared, students feel more free to express doubts, feelings of success, remaining questions, and uncertainties than when they are evaluated only by a teacher. Furthermore, the sense of cooperation (as opposed to competition) that is fostered in collaborative work makes assessment less threatening than in a more traditional assessment situation. Ideally, students learn to evaluate their own learning from their experiences with group evaluation.

Interactions in a Collaborative Classroom

The critical role of dialogue in collaborative classrooms has been stressed throughout this **Guidebook**. The collaborative classroom is alive with two-way communication. A major mode of communication is dialogue, which in a collaborative classroom is thinking made public. A major goal for teachers is to maintain this dialogue among students.

Consider examples of interactions in collaborative groups. Members discuss their approaches to solving a math problem, explain their reasoning, and defend their work. Hearing one student's logic prompts the other students to consider an alternative interpretation. Students are thus challenged to re-examine their own reasoning. When three students in a group ask a fourth student to explain and support her ideas, that is, to make her thinking public, she frequently examines and develops her concepts for herself as she talks. When one student has an insight about how to solve a difficult problem, the others in the group learn how to use a new thinking strategy sooner than if they had worked on their own. Thus, students engaged in interaction often exceed what they can accomplish by working independently.

Collaborative teachers maintain the same sort of high-level talk and interaction when a whole class engages in discussion. They avoid recitation, which consists primarily of reviewing, drilling, and quizzing; i.e., asking questions to which the answer is known by the teacher and there is only one right answer. In true discussion, students talk to each other as well as to the teacher, entertain a variety of points of view, and grapple with questions that have no right or wrong answers. Sometimes both students and the teacher change their minds about an idea. In sum, interactions in whole group discussion mirror what goes on in small groups.

Still a third way interactions differ in collaborative classrooms has been suggested above. Teachers, in their new roles as mediators, spend more time in true interactions with students. They guide students' search for information and help them share their own knowledge. They move from group to group, modeling a learning strategy for one group, engaging in discussion with another, giving feedback to still another.

Challenges and Conflicts

When teachers and schools move from traditional to collaborative instruction, several important issues are likely to arise. They are important concerns for teachers, administrators, and parents.

Classroom Control Collaborative classrooms tend to be noisier than traditional classrooms. This is a legitimate issue for a number of people. Some teachers believe that noisy classrooms indicate lack of discipline or teacher control. In such situations, they argue, students cannot learn.

Earlier in this essay we stressed that collaborative classrooms do not lack structure. Indeed, structure becomes critical. Students need opportunities to move about, talk, ask questions, and so on. Thus, we argue that the noise in a smoothly running collaborative classroom indicates that active learning is going on. However, students must be taught the parameters within which they make their choices. Rules and standards must be stressed from the beginning, probably before any collaboration is initiated, and reviewed throughout a school year.

Preparation Time for Collaborative Learning Teachers and administrators may believe that new lesson plans must be formed for these classrooms. To a certain extent, they are correct. But many teachers already have created engaging units and activities that are easily implemented in a collaborative classroom. Furthermore, teachers can begin slowly, making changes in one subject area or

unit within a subject area, probably one they are already very comfortable teaching, and then add other subjects and units. Teachers can also share their plans with each other. Indeed, if we expect students to collaborate, we should encourage teachers to do the same! Principals and curriculum specialists can also collaborate with teachers to plan effective segments of instruction. Moreover, there is a tradeoff between the extra planning time needed and benefits such as less time correcting lessons, increased student motivation, and fewer attendance and discipline problems.

Individual Differences Among Students We have touched on this concern in the section on heterogeneous grouping. Nevertheless, many people will still doubt that individual differences can be better addressed in collaborative classrooms than in traditional classrooms with homogeneous grouping.

A major question people have concerns the advantage collaboration affords gifted or high-achieving students. There are two tough issues here. First, many teachers do not believe that low-achieving students have much to contribute to the learning situation; in effect, that they have no prior experiences or knowledge of value. Second, teachers worry that high-achieving students will be held back.

In response to the first issue, many collaborative teachers have expressed surprise when seemingly less-able students had insights and ideas that went way beyond what teachers expected. Further, if each student contributes something, the pool of collective knowledge will indeed be rich. In answer to the second concern, data suggest that high-achieving students gain much from their exposure to diverse experiences and also from peer tutoring (e.g., Johnson and Johnson, 1989). Also, students who may be high achieving in one area may need help in other areas.

Teachers and others also wonder whether shy students can fully participate in a classroom that depends so much on dialogue. We suggest that these students might feel more comfortable talking in small groups that share responsibility for learning. Furthermore, interaction between learners can happen in ways other than oral dialogue, for example, writing and art.

A related concern is that many schools are structured homogeneously so that an individual teacher cannot form heterogeneous groups without involving changes in the entire school. A whole class of "low" readers are taught by one teacher, "average" by another. High school tracks are even more systematically entrenched. Clearly, these practices are not conducive to collaborative learning and require system-wide restructuring. Individual teachers or groups of teachers can initiate dialogue on the problem, however.

Individual Responsibility for Learning This concern is a difficult one to solve unless major changes in other areas of schooling are also undertaken. Students are used to being graded for individual work; parents expect to know how their students fare in school. School staff and state departments depend on traditional assessments. In collaborative classrooms, it is often difficult to assign individual grades. Some teachers give group grades, but many students and parents are uncomfortable with these.

Ideally, assessment practices should be changed so that they are consistent with collaboration, with a new view of learning and with a thinking curriculum. Video Conference 4 addresses recent research and practice on assessment. In the meantime, effective ways have been developed whereby individual students can be evaluated in collaborative classrooms. For example, David Johnson and Roger Johnson, as well as Robert Slavin, advise making individuals responsible for subtasks in group work and then determining both group and individual grades.

Conflict of Values Susan Florio-Ruane has observed that many teachers do not feel comfortable allowing students to initiate dialogue, determine topics, or explore perspectives other than the teacher's. This reluctance conflicts with the way effective caregoers teach their children in the home. Florio-Ruane and others, such as Annemarie Palincsar, have found that teachers often have difficulty helping students construct meaning, especially linking the new information to the prior knowledge and culture of the students. In part this is because many teachers believe that their role is to transmit knowledge; in part it is because they are held accountable for teaching discrete skills. In one poignant example, a student teacher's concern for grammar and punctuation prevented her from seeing the sophistication and meaning in what the child was actually communicating in a book report.

The reluctance people feel when asked to make major changes in the way they do things is clearly the most serious issue of those discussed here. Hardly a person exists who eagerly gives up familiar ways of behaving to attempt something that is unknown and is likely to have many challenges of implementation.

This problem requires leadership, support, and time to address. Staff development needs to address teachers' concerns. We urge that educators first examine their assumptions about learning and then consider new curriculum guidelines. There is an intimate relationship among one's definition of learning, one's view of the content and scope of curricula, and instructional practices. Examining one's assumptions honestly and forthrightly, in a supportive group, often spurs educators to change. The already-convinced must allow time for the less-convinced to reflect and grapple with implications for the views expressed in this **Guidebook.** They must also accept the possibility that some educators may not change. We are urging that students be treated with such respect; we must urge the same respect for adults.

What Is the Research Base for Collaborative Learning?

Vygotskian Theory

Vygotsky, a developmental theorist and researcher who worked in the 1920s and early '30s, has influenced some of the current research of collaboration among students and teachers and on the role of cultural learning and schooling. His principal premise is that human beings are products not only of biology, but also of their human cultures. Intellectual functioning is the product of our social history, and language is the key mode by which we learn our cultures and through which we organize our verbal thinking and regulate our actions. Children learn such higher functioning from interacting with the adults and other children around them.

Inner Speech Children learn when they engage in activities and dialogue with others, usually adults or more capable peers. Children gradually internalize this dialogue so that it becomes inner speech, the means by which they direct their own behavior and thinking. For example, as adults use language such as, "That piece does not fit there; let's try it someplace else," children may initially just imitate this strategy. However, they gradually use it to regulate their own behavior in a variety of contexts. Eventually, this dialogue becomes internalized as inner speech.

There seems to be a general sequence in the development of speech for oneself. When alone, very young children tend to talk about what they have done after they complete an activity. Later, they talk as they work. Finally, they talk to themselves before they engage in an activity. Speech now has assumed a planning function. Later they internalize this speech. Inner speech—conversations we carry on with ourselves—begins as a social dialogue with other people and is a major mode of learning, planning, and self-regulation.

Various experiments demonstrate this self-regulating function of inner speech. Vygotsky reasoned that when people are asked to solve difficult problems or to perform difficult tasks, inner speech will go external, that is, take its more primitive form. In other words, people frequently talk to themselves when they face a problem. This externalization of inner speech is often observed in children. When they engage in familiar, simple activities, they usually do so without talk, but faced with difficult tasks, they may whisper or talk out loud to themselves. Adults do this, too. When they are faced with perplexing or unfamiliar tasks—such as figuring out how to work a VCR—they often talk themselves through such tasks.

Vygotsky noted that children interacting toward a common goal tend to regulate each other's actions. Other researchers (e.g., Forman & Cazden, 1986) have observed that when students work together on complex tasks, they assist each other in much the same way adults assist children. In such tasks, dialogue consists of mutual regulation. Together, they can solve difficult problems they cannot solve working independently.

Scaffolding and Development Effective caregivers engage in regulating dialogue with children almost naturally. A key phenomenon of such interactions is that caregivers maintain the dialogue just above the level where children can perform activities independently. As children learn, adults change the nature of their dialogue so that they continue to support the child but also give the child increasing responsibility for the task (for example, the adult might say, "Now see if you can find the next piece of the puzzle yourself."). Jerome Bruner and his colleagues called this **scaffolding**. It takes place within a child's **zone of proximal development**, a level or range in which a child can perform a task with help. (Piaget refers to this as "teachable moments" when adults stretch a child's capacity, but stay within what they are capable of understanding.)

The zone of proximal development, scaffolding, and dialogue are especially useful concepts or frameworks for school learning. Vygotsky observed that effective teachers plan and carry out learning activities within children's zones of proximal development, through dialogue and scaffolding. Florio-Ruane drew five maxims from studies of caregiver-child interactions that illustrate these points and should characterize school instruction.

1. Assume the child (learner) is competent

2. Know the child (learner)

3. Share an interest in the task at hand with the child (learner)

4. Follow the child's (learner's) lead

5. Capitalize on uncertainty

Very few teachers have the luxury of teaching children on a one-to-one basis. Fortunately, we now know that tutoring is not, in fact, the only—or even the best—way for students to learn in most situations. Dialogue, scaffolding, and working in one's zone of proximal development can be accomplished in collaborative classrooms, and are being accomplished in many classrooms today.

Connecting school learning to everyday life Vygotsky also provides us with a framework for thinking about an important function of teaching and the multicultural perspective. His research suggests that school learning enables students to connect their "everyday concepts" to "scientific concepts." In other words, schools help students draw generalizations and construct meaning from their own experiences, knowledge, and strategies. Knowledge learned in the community and knowledge gained from school are both valuable. Neither can be ignored if students are to engage in meaningful learning.

Effective teachers help students make these connections by scaffolding and dialogue. In fact, these are the essence of mediating. Teachers plan learning activities at points where students are challenged. Teachers plan activities and experiments that build on the language of students' everyday lives through familiar examples and behaviors, analogies and metaphors, and the use of commonly found materials. Teachers demonstrate, do parts of the task students cannot do, work collaboratively with students where they need help, and release responsibility to students when they can perform the task independently.

Other Research

A number of researchers in recent years have demonstrated the high degree of learning possible when students can collaborate in learning tasks and when they use their own knowledge as a foundation for school learning. While there are many that we could cite, we have chosen three different perspectives here: Luis Moll's work on teachers' use of successful cultural patterns in Mexican-American families; Annemarie Palincsar's and Anne Brown's work on scaffolding, dialogue, and reciprocal teaching; and research on cooperative learning. Later we provide additional research in content area examples.

Luis Moll Moll, an educator, and his colleagues in anthropology, Carlos Velez-Ibanez and James Greenberg, have studied Mexican-American families who have survived successfully in spite of debilitating circumstances such as poverty and discrimination. Particular constellations of cultural patterns—strategies if you will—that value learning and the transmission of knowledge to children distinguish these families. Moll et al. argue that schools can draw on the social and cognitive contributions that parents can make to their children's academic learning.

Moll and his colleagues discovered that Mexican-American households are clustered according to kinship ties and exchange relationships. These clusters of households develop rich **funds of knowledge** that provide information about practices and resources useful in ensuring the well-being of the households. Each household in the cluster is a place where expertise in a particular domain can be accessed and used; examples of domains include repair of vehicles and appliances, plumbing, knowledge of education, herbal medicine, and first aid. Together, the households form a cluster for the exchange of information and resources. Often, everyone seems to congregate at one core household.

Families create settings in which children carry out the tasks and chores in the multiple domains of clustered households. The children's activities have important intellectual consequences. They observe, question, and assist adults as various tasks are done. For example, the son may indicate interest in fixing a car by asking questions. The father takes his cue from the child and then decides whether or not the child is capable of doing a task; if not, he may suggest a task that the child can accomplish. Even though the son's help may be minimal, such as helping to put in screws or checking the oil, his participation in the whole task is encouraged as an essential part of learning. He is allowed to attempt tasks and to experiment without fear of punishment if he fails. In such families, learning and questioning are in the hands of the child.

With time children develop expertise as well. They have many opportunities in the cluster of households to apply what they have learned to tasks of their own design. For example, the son may have a workplace where there are many "junk" engines that he can manipulate and with which he can experiment. He may use what he has learned in observing and assisting his father to rebuild a small engine for a "go-cart" he is constructing.

Moll and his colleagues are exploring ways of using the community to enrich children's academic development. To accomplish this, teachers have developed an after-school laboratory. One teacher created a module on constructing houses which is a theme of great interest to the students in this teacher's classroom and also one of the most prominent funds of knowledge found in the students' households. The students started by locating information on building or construction in the library. As a result of their research, they built a model house or other structure as homework and wrote reports describing their research and explaining their construction. To extend this activity, the teacher invited parents and other community members who were experts to share information on specific aspects of construction. For example, one parent described his use of construction tools and how he measured the area and perimeter of his work site. Thus, the teacher was mobilizing the funds of knowledge in the community to achieve the instructional goals that she and her students had negotiated together.

The students then took the module one step further. They wanted to consider how they could combine these individual structures to form a community. This task required both application of their earlier learnings and considerable research. Students went out to do research, wrote summaries of their findings, and shared the results orally with others in the class. Thus, students fulfilled their own interests and designed the learning task, while the teacher facilitated and mediated the learning process and fulfilled her curricular goal of teaching language arts.

Palinscar and Brown Palinscar and Brown have applied Vygotsky's theories about dialogue and scaffolding to classroom instruction. They reasoned that if the natural dialogue that occurs outside of school between a child and adult is so powerful for promoting learning, it ought to promote learning in school as well. In particular, they were interested in the planning and self-regulation such dialogue might foster in learners as well as the insights teachers might gain about their students' thinking processes as they engage in learning tasks. In addition, dialogue among students might be especially effective for encouraging collaborative problem solving.

Palinscar and Brown noted that, in contrast to effective adult-child interactions outside of school, classroom talk does not always encourage students to develop self-regulation. Thus, a goal of their research was to find ways to make dialogue a major mode of interaction between teachers and students to encourage self-regulated learning.

Their classroom research revealed increased self-regulation in classrooms where, subsequent to training, dialogue became a natural activity. Within a joint dialogue, teachers modeled thinking strategies effectively, apparently in part because students felt free to express uncertainty, ask questions, and share their knowledge without fear of criticism. The students gave the teachers clues, so to speak, as to the kind of learning they were ready for. For example, one student interrupted her teacher when she did not understand something the teacher was reading. The teacher took this opportunity to model a clarifying strategy. (It also would have been appropriate to have asked other students to model the process.) In a number of classrooms, students freely discussed what they knew about topics, thus revealing persistent misconceptions. Such revelations do not always happen in more traditional classrooms. Furthermore, teachers helped students change their misconceptions through continued dialogue.

One particular application was in reading comprehension for students identified as poor readers. The researchers proposed that poor readers have had impoverished experiences with reading for meaning in school and concluded that they might learn comprehension strategies through dialogue. To encourage joint responsibility for dialogue, they asked students to take increasing responsibility for leading discussion, i.e., to act as the teacher. This turn-taking is called reciprocal teaching.

The four comprehension strategies that are stressed are: predicting, question generating, summarizing, and clarifying. The "teacher" leads dialogue about the text. Predicting activates students' prior knowledge about the text and helps them make connections between new information and what they already know, and gives them a purpose for reading. Students also learn to generate questions themselves rather than responding only to teacher questions. Students collaborate to accomplish summarizing, which encourages them to integrate what they have learned. Clarifying promotes comprehension monitoring. Students share their uncertainties about unfamiliar vocabulary, confusing text passages, and difficult concepts.

Reciprocal teaching has been successful, but only when teachers believe the underlying assumption that collaboration among teachers and students to construct meaning, solve problems, and so forth, leads to higher quality learning. Believing this is only a beginning. Engaging in true dialogue requires practice for both teachers and students. However, the principles of collaborative dialogue and scaffolding for purposes of self-regulated learning ought to be effective across many content areas. What may differ, of course, are the critical specific strategies for different subject areas. For example, defining problems seems critical in mathematics; judging the reliability of resources appears important in social studies; and seeking empirical evidence is essential in science. In fact, Palinscar is currently investigating problem solving in science.

Cooperative Learning Cooperation, a form of collaboration, is "working together to accomplish shared goals" (Johnson & Johnson, 1989, p. 2). Whereas collaboration happens in both small and large groups, cooperation refers primarily to small groups of students working together. Many teachers and whole schools are adopting cooperation as the primary structure for classroom learning.

Research strongly supports the advantages of cooperative learning over competition and individualized learning in a wide array of learning tasks. Compared to competitive or individual work, cooperation leads to higher group and individual achievement, higher-quality reasoning strategies, more frequent transfer of these from the group to individual members, more metacognition, and more new ideas and solutions to problems. In addition, students working in cooperative groups tend to be more intrinsically motivated, intellectually curious, caring of others, and psychologically healthy. That is not to say that competition and individual work should not be valued and encouraged, however. For example, competition is appropriate when there can be only one winner, as in a sports event, and individualistic effort is appropriate when the goal is personally beneficial and has no influence on the goals of others.

Unfortunately, simply putting students in groups and letting them go is not enough to attain the outcomes listed above. Indeed, many teachers and schools have failed to implement cooperation because they have not understood that cooperative skills must be learned and practiced, especially since students are used to working on their own in competition for grades. At least three conditions must prevail, according to Johnson and Johnson, if cooperation is to work. First, students must see themselves as positively interdependent so that they take a personal responsibility for working to achieve group goals. Second, students must engage in considerable face-to-face interaction in which they help each other, share resources, give constructive feedback to each other, challenge other members' reasoning and ideas, keep an open mind, act in a trustworthy manner, and promote a feeling of safety to reduce anxiety of all members. Heterogeneous groups of students usually accomplish this second condition better than do homogeneous groups.

The third condition, effective group process skills, is necessary for the first two to prevail. In fact, group skills are never "mastered." Students continually need to reflect on their interactions and evaluate their cooperative work. For example, students need to learn skills both for accomplishing tasks, such as summarizing and consensus taking, and for maintaining group cohesiveness, such as ensuring that everyone has a chance to speak and compromising.

Some people, such as Slavin, have developed specific cooperative learning methods that emphasize individual responsibility for group members. While groups still work to achieve common goals, each member fulfills a particular role or accomplishes an individual task. Teachers can then assess both group and individual work.

Difficult as it may be to implement cooperative learning, those who have are enthusiastic. (See the example from Joliet West High School in the next section.) They see improved learning, more effective social skills, and higher self-esteem for most of their students. In addition, they recognize that our changing world demands more and more cooperation among individuals, communities, and nations, and that they are indeed preparing students for this world.

What Are Other Examples of Collaborative Instruction?

The Kamehameha Early Education Program Some teachers in Hawaiian classrooms, in cooperation with researchers such as Katherine Au, have developed a way to teach elementary reading, Experience-Text-Relationship (ETR), that focuses on comprehension and draws on the strengths of the Hawaiian culture. The basic element of the ETR method is discussion of a text and topics related to the text, especially students' own experiences.

Teachers conduct discussion of stories in three phases. First, they guide students to activate what they know that will help them understand what they read, make predictions, and set purposes. This is the Experience phase: Next, they read the story with the students, stopping at appropriate points to discuss the story, determine whether their predictions were confirmed, and so on. This is the Text phase. After they have finished the story, teachers guide students to relate ideas from a text to their own experiences. This is the Relationship phase. Teachers facilitate comprehension, model processes, and may coach students as they engage in reading and comprehension activities.

Hawaiians engage in "talk story" as a favored way to narrate stories. While some cultures expect only one person to relate a story, Hawaiians cooperate by taking turns relating small parts of a story. Encouraging such strategies in reading lessons promotes collaboration among students and the teacher and involves, indirectly, the community as well. (Cooperation among family and group members is also important in other aspects of the culture.) As a result, the ETR method not only attends to students' experiences related to the content of a text, but also honors communication strategies students have learned in their own cultures.

Content Area Reading Harold Herber developed a set of teaching strategies for content area reading for older students, particularly high school students, in which teachers show students how to comprehend text through simulation (modeling and facilitating) rather than asking recitation questions that merely assess whether students have understood a text.

In addition, use of small, heterogenous, collaborative groups in content area reading increases students' involvement in learning. They are more willing to take risks and to learn new strategies and ideas from their peers. Teachers who use Herber's strategies report that all students seem to benefit from collaborative work. They find that it is critical, however, to teach students how to work in groups.

Process Writing The process writing approach we describe here was developed in a rural school in New Hampshire under the direction of Donald Graves. It has been incorporated in many elementary school classrooms but is just as appropriate for older children.

Process writing teachers who use Graves' approach make certain assumptions about students and the writing process. One is that students have worthwhile ideas to communicate in writing. Another is that when students select their own topics they will learn more about writing than if teachers always assign topics. A third is that writing should be read by real audiences, that is, that writing is constructing meaning by a community of writers and readers.

Both teachers and students engage in writing as a craft. Teachers' main functions are to facilitate, model, and coach. Students dialogue with other students in conferences and as part of an audience. The mode of interaction is collaboration among students and the teacher.

Teachers fulfill their mediating roles in many ways. They facilitate by providing time to write every day and by setting standards with the students for conferencing, sharing, and being an audience. They model by writing along with the students and thinking aloud about how to solve problems writers encounter such as selecting topics and making revisions. Coaching often takes place in teacher-student conferences, and student-student conferences mirror the teacher-student conference. Conferences are conceptualized as dialogues between an editor and an author. The "editor" might point out places where the author's writing works especially well, or might point out a confusing passage that the author could revise. Graves provides many practical guidelines for, and examples of, successful conferencing.

Many important interactions are promoted in process writing. Students work on their own, but also share their writing with other students and the teacher. When a student decides to share his or her work with the whole class, he or she is treated as a real author. Questions that other students ask the student author would be the same ones they might ask a "real" author; for example, "Where did you get your idea for that story?" When students feel a piece is finished, they publish it and place it on the classroom shelves alongside books by their peers and "real" authors.

Finding Mathematical Patterns Mathematics is full of opportunities for students to collaborate on tasks that require complex thinking. Well-designed problems require interpretation, allow for multiple solution strategies, and have solutions that can be debated, extended, and generalized to other contexts. Thomas Good and his colleagues at the University of Missouri-Columbia have identified exemplary practices in small-group mathematics instruction.

As an illustration, they summarize a lesson developed by a third-grade teacher. She began the lesson by asking the whole class all the different ways of writing 3 as a sum (for example, 1 + 1 + 1, 2 + 1, 3 + 0). She wrote the responses on the board and noted the number of possibilities. She then asked students to work in pairs to identify all the ways to make sums of 4. The teacher encouraged the students to confer and pool solutions to determine whether they had found all possible solutions. Next she asked small groups of students to consider the number 5. Before the groups started, she asked them to predict how many solutions there would be. With enthusiasm and excitement, the groups competed to find the greatest number of solutions, and much task-related conversation ensued. The teacher then led a follow-up discussion, asking each group to describe the system it had used to generate possible solutions. The class then decided which system they thought was best.

The teacher then helped students look for patterns in the numbers of solutions for 3, 4, and 5. Next, she asked them to use their "best" system to generate all possible patterns for the number 6. Again, she asked if a pattern was apparent and if they could use it to predict solutions for the number 7. Several suggestions were made, but no conclusions agreed on. She ended by encouraging students to think more about this problem.

Application in Mathematics. As part of the University of Chicago School Mathematics Project, a complete mathematics curriculum has been developed for average students in grades 7-12. Development of this curriculum, which began in 1983, is under the direction of Zalman Usiskin and Sharon Senk, and has involved school personnel at every stage of planning, writing, and testing. The curriculum aims to prepare students for an age in which mathematics has an integral role in contemporary issues, communication, and commerce, as well as its traditional role in science, engineering, and technology. Curricular content focuses on using mathematics to solve real-world problems.

For example, instead of being asked to find a solution to an abstract "problem" such as 400 divided by 11.3, students might be asked, "Suppose a car goes 400 miles between gas fill-ups and it takes 11.3 gallons to fill up the tank. What has been the mileage per gallon?" In classes where this question is asked and the answer (about 35.4 miles per gallon) is found, there are natural questions such as: "Why is this number important?" "Is this possible - do cars get this much mileage? If so, what cars do?" "What is a good gas mileage these days?" "How much less gas would be used on a 10,000-mile trip by a car averaging 35 miles per gallon than a car averaging 25 miles per gallon? How much less would it cost?"

This emphasis on using mathematics to solve real-world problems forces the curriculum to make use of technology. The use of technology—in this case, a calculator - enables the teacher and students to be more efficient in using math to solve problems, freeing up the time formerly spent in calculation for solving additional problems relevant to students' lives. In the School Mathematics Project, scientific calculators are required in all courses because they are available to almost anyone who uses mathematics in the world outside of school. Computer work is recommended in all courses and is required in one advanced course because the content—functions and statistics—is not covered adequately today unless one has automatic graphic and data handling capabilities.

In these ways, instruction is changed not because of an a priori decision to use collaborative groups or cooperative learning, but because the content and technology lend themselves to discussion and teamwork. Students are usually not satisfied merely with a right/wrong answer to an interesting problem; they wish to discuss it, they want to share their methods of solution, and they want to know whether others thought the same way. One of the salient findings from the testing of this curriculum is that students no longer ask, "How does this topic apply to the real world?" or "Why am I studying this?"

In the algebra curriculum, Usiskin and Senk have included only those "word problems" that show the importance of mathematics in today's world. The curriculum developers point out the pitfalls of problems such as the following, often found in algebra texts: "Reversing the two digits in the cost of an item, a salesperson overcharges a customer by 27 cents. If the sum of the digits was 15, what was the original cost of the item?" Such problems violate two principles of application of mathematics. First, they are reverse given-find, in that one has to know the answer before one can make up the question. In the real world, one would never solve a problem for which one already as solution. Second, such problems are easier to solve with arithmetic than algebra. Usiskin, Senk, and the teachers they work with believe it is because of these two weaknesses that such "word problems" are viewed with such antipathy that many students ask why they are studying the subject. Mathematics, Usiskin, points out, has been invented to do things more easily, not to make things more difficult.

The School Mathematics Project teaches algebraic concepts using real-world problems. For example, linear equations are taught with a wide variety of constant increase or constant decrease problems, such as, "The population of the province of Quebec in Canada was 6,398,000 in 1980. If the population is increasing by 40,000 people per year, find an equation relating the population to the year." An example of a linear combination problem is: "If you eat a quarter-pounder which has 80 calories per ounce, how many 111-calorie French fries can you eat if you don't want your lunch to exceed 500 calories?" An example involving data that needs a line graph is: "Given the latitudes and mean April temperatures of some cities in the northern hemisphere, find an equation approximately relating latitude and temperature. Graph this equation. Explain why the point for Mexico City falls far from the line." Similar problems are used to teach other concepts in algebra and other courses. The goal of the curriculum developers is to show that it is important not only to have skills, to see the relationships among mathematical ideas, and to represent these ideas concretely or pictorially, but also to see why mathematics is so important in so many ways in today's world.

Joliet West High School, Joliet, IL Joliet is a community of approximately 100,000 people diverse in terms of racial background and income level. Whites, blacks, and Hispanics reside in Joliet. It is home to families living in poverty as well as families living in affluence. In the mid-'80s, Joliet West High school had a high failure rate (37 percent of the freshmen class failed one or more classes) and a high rate of referrals for discipline problems. Determined to equip students with knowledge and skills to succeed both in school and out, the high school instituted a cooperative learning program exemplifying collaborative instruction.

Basic to Joliet West High School's program are the TEAM (Together Each Accomplishes More) Seminars in which all freshmen participate daily. Seminars provide students with opportunities to experience small-group, cooperative learning. While learning problem-solving and decision-making skills, students, grouped heterogeneously with regard to race, economic level, and ability, begin to appreciate diverse cultures, attitudes, and abilities. TEAM also involves the community: Local hospital staff talk with freshmen about stress management and drug abuse prevention; other community members introduce students to career possibilities.

Aware that collaboration promotes learning in many settings, Joliet West High School trains many of its content-area teachers to make their classrooms communities of collaboration. In English, history, foreign language, and industrial technology, for example, students collaborate in small groups or as an entire classroom; they share prior knowledge, set learning goals, monitor their progress, and share responsibility for results. Heterogeneous grouping may team students from various socioeconomic groups and students with varying experiential backgrounds. Gifted students and former Special Education students may collaborate. Classrooms are open communities where all ideas are welcome; students challenge each other and share positive criticism. Teachers offer positive reinforcement and communicate successes to parents.

Collaborative techniques extend to discipline. Student groups, trained in mediation and arbitration, counsel students who are habitually tardy or disruptive.

Joliet's success is evident not only in academic performance, but also in student attitudes, motivation, and self-esteem. Since the program's inception three years ago, the number of students earning grades in the A to C level has increased by 20 percent, and there has been a significant reduction in the number of failures among the academically at-risk group. Teacher comments illustrate other types of gains: "I use it in auto technology. Students change oil in triads: one picks up the tools, one puts them away, while one actually does the job. All watch and are responsible that the job is done properly." "I find that there seem to be fewer disciplinary referrals on the freshman level." "In freshman seminar my students are forming their own groups to study before major tests. They quiz each other. They enjoy working together so much, they have even made up their own games and asked me to be part of their group."

Student comments may be the most insightful: "I really like sharing answers. I never shared answers before." "I really like working in groups because you can bring your grade up." "While working in groups there are no arguments. If you disagree with someone you find a way to solve the problem." "I learned not to argue and always help out and share ideas that you think of and do not start fights." "Working with groups is fun because you get to share your facts with someone else."

Beaupre Elementary School, Aurora, IL This school's student population is approximately 44 percent Hispanic, 46 percent black, 9 percent white, and 1 percent Asian. Most students are members of low-income families. Just a few years ago, many Aurora citizens had few expectations of Beaupre students. The community regarded many students as little more than troublemakers. School personnel were frustrated with their students' lack of learning success, particularly in reading.

All that has changed. The program that made all the difference is called **Reading, Reading, Everywhere**. Far more than a reading program, it demonstrates how collaboration within the classroom, the school, and the community can produce successful learners.

Rather than continuing to rely on homogeneous grouping and entirely on basal readers, Beaupre adopted a whole-language approach and collaborative learning. The curriculum provides students with opportunites to read many types of literature by authors from various cultural backgrounds, opportunities to visit the public library, and diverse writing experiences. An instructional technique known as K-W-L was introduced in classrooms.

Teachers activate students' prior knowledge by asking them what they already KNOW; then students (collaborating as a classroom unit or within small groups) set goals specifying what they WANT to learn; and, after reading, students discuss what they have LEARNED. Students apply higher-order thinking strategies which help them construct meaning from what they read and help them monitor progress toward their goals.

At Beaupre, students often work in cooperative groups—in which each student has a specific responsibility—to complete a product such as a story map. Fifth- and sixth-grade teachers have seen how effectively peer influence regulates behavior when group members must cooperate to complete a science experiment or other type of assignment.

Beaupre has gained respect in the community by utilizing the talents of community members to further stimulate learning. Among the numerous collaborative efforts are: visits to senior centers where youngsters and senior citizens read to each other; visits to early education centers where Beaupre students share their knowledge with the toddlers; a homework lab operated by teenagers and seniors from a local church; and an Urban League tutoring program operated by parents and high school students. A program exemplifying collaboration as well as a whole-language approach is the school's Read Aloud program. Students in each classroom write to community members inviting them to be the "community reader" for the day. Community members of various ethnic groups and occupations have accepted invitations and serve as role models for the students.

In addition to heightened involvement and respect from parents and the community at large, Beaupre has observed improvement in students' reading habits and abilities: after-school reading was up 20 percent; the number of students holding library cards increased by 28 percent; newspaper readership by students increased significantly. On state reading comprehension and vocabulary assessments, the school rose from last in the school district to first in the county; the percent of students in the bottom quartile on standardized tests for grade 1-6 decreased from 80 percent to 22 percent; and overall reading scores of at-risk students tutored through the Urban League Project increased 34 percent. In fact, 5 of 15 students moved out of the at-risk category.

Redwood Falls High School, Redwood Falls, MN Redwood Falls, a community of 5,000 people, is rapidly changing. What was once a very stable community is now characterized by instability: Many farmers found it necessary to leave the area, others remained and took low income jobs, and a number of new people are moving into the area. The range of income levels is wider now than when agriculture was the main enterprise.

These changes have created a lack of cohesiveness and feelings of insecurity in the community. High school students, especially, fear for their future and wonder if they will find jobs. The town's limited manufacturing enterprises, retail stores, and remaining farms cannot provide employment for all the town's youth. Most will probably seek jobs in small cities nearby.

To address these problems, in the late 1980s the school system applied to the American Forum in the late 1980s and was awarded a five-year Education 2000 grant. Education 2000 funds enable communities to restructure schools so that students are prepared for a changing society. To accomplish this aim, the entire Redwood Falls community collaborated to set goals and develop a restructuring plan.

These efforts have led to many positive changes. People began regarding the schools as the center of intellectual life for the community at large. Early childhood, family education, and university-level adult education courses are among those programs available to everyone in the community.

Curriculum and instruction have also changed. Instruction is much more collaborative, and curriculum focuses more on higher order thinking skills needed for success in school and in life. Teachers tap students' prior knowledge and help students "learn how to learn," through collaborative problem solving and decision making. When students need information, they ask an "expert" classmate or contact a community expert. Students develop their own tools to "test" how well they have learned. The curriculum has also become more interdisciplinary and builds on the multicultural resources in the community (Native Americans, Swedes, and Norwegians).

In Larry Gavin's high school English class, for example, students work in small groups to critique each other's writing. When students write narrative, they consult Dakota Indian students who are skillful in writing narrative because in their culture, nothing is an "event" until someone tells a story about it. When studying about conflicts on the Great Plains in the 1800s between Native American and white groups, students heard representatives of both groups present their point of view. Gavin, the drama teacher, and the music teacher collaborated to assist students in writing and producing an original one-act play.

ESSAY ACTIVITIES

What Is the Collaborative Classroom?

What Is the Research Base for Collaborative Learning?

What Are Other Examples of Collaborative Instruction?

What Is the Collaborative Classroom?

Activity 1: How does your classroom encourage collaboration?

An important first step in developing a collaborative classroom is to EXAMINE how your present practices reflect elements of a collaborative classroom. In each category, LIST specific collaborative behaviors and activities that are already a part of your classroom.

Shared knowledge:

Shared authority:

New roles for teacher:
(mediator, facilitator, model, coach)

New roles for students:
(goal setting, design/monitor learning tasks, assessment)

Heterogeneous groupings:

Collaborative Interactions:

Activity 2: What are your goals for a collaborative classroom?

Part A: Based on your analysis in Activity 1, WRITE general goals and sample objectives for implementing a collaborative classroom. To do this, ask yourself two questions:

1. What changes do I want to achieve and by whom; for example, students, teachers, parents?

2. What do I want my collaborative classroom to look like in six months or one year? Consider how the following influence collaboration: materials and equipment; room arrangements; heterogeneous grouping; student interaction; focus on discussion instead of recitation; student goal setting, planning learning tasks, monitoring, and assessment; group skills; teacher mediating activities; and students' knowledge, experiences, and familiar artifacts and materials.

Goals	Objectives
Example: Increase student responsibility for their own learning	Example: Groups will brainstorm solutions to the problem of air pollution

Part B: WRITE a timeline for accomplishing your goals.

1. What can you do now to implement collaborative learning?
2. What can to you do in the next few months?
3. What can you accomplish within a year?

Now

Example: Observe a colleague who has a collaborative classroom.

Next few months

Example: Teach students group skills necessary for collaboration.

Year

Example: Plan/implement collaborative learning in social studies.

Activity 3: What issues will you face if you implement a collaborative classroom?

The essay outlined some challenges and conflicts associated with the collaborative classroom. LIST additional concerns that might arise in your setting. Then BRAINSTORM ways to meet these challenges; for example, regular time to share ideas and concerns with other teachers, peer coaching, etc.

Issues	Ways to Address Issues
Classroom control	
Preparation time	
Individual differences among students	
Conflict of values	
Additional issues:	

What Is the Research Base for Collaborative Learning?

Activity: How can you apply ideas from research in your classroom?

ANSWER the following questions as they could apply in your classroom. It may help you to think about specific students and lessons.

1. How can you scaffold your instruction?

2. How can you promote dialogue to help students become self-regulated learners?

3. How can you promote collaboration?

4. How can you teach group process skills?

5. How can you implement cooperative learning?

6. How can you help students use their funds of knowledge and cultural artifacts and materials for learning?

7. What community funds of knowledge can you draw on?

8. How can you ensure that students have opportunities to learn in varied contexts?

What Are Other Examples of Collaborative Instruction?

Activity 1: What would a collaborative classroom be like in your school and community setting?

As illustrated by the classroom examples in the video conference and the essay, collaborative classrooms have common elements, but they do not all look the same. SELECT one of the examples given in the essay and DESCRIBE what it would look like in your setting. EXPLAIN why you would make changes. CONSIDER the political, economic, social, and educational realities of your community that influence your changes. (Possible factors: degree of political support of education, economic health, social groups, district/board policies, community/business support, parent support, state policies.)

Examples from the essay:

Adaptations **Reasons for adaptations**

Activity 2: Identifying possibilities: How can you use sources of knowledge in a collaborative unit?

CHOOSE a unit you already teach (or a new unit). LIST unit goals and EXPLAIN how you would use sources of knowledge to attain each goal.

Unit topic:

Goals	How will you use your knowledge?	How will you use your students' knowledge?	How will you use your community's knowledge?

SCHOOL-BASED ACTIVITIES

Activity 1: Preparing for Change

Activity 2: Getting Started

Activity 3: Continuing to Grow

Note: The activities in this section are sequenced to address different levels of involvement in the restructuring process. Begin by selecting the activities best suited to your school.

Activity 1: Preparing for Change

Part A: What are some ways you can implement collaboration in your school?

An important step in restructuring is to brainstorm and set goals for new instruction. We suggest you work in collaborative groups of teachers, administrators, and community members and follow these steps:

1. BRAINSTORM goals that will help you to implement the collaborative model. LIST them below.
2. Then, EVALUATE how well each goal will meet your vision of learning and new curriculum goals
3. Based on your evaluation, DECIDE which goals you want to achieve. Put an asterisk next to those goals you wish to implement. Specify person responsible.
4. Finally, WRITE a timeline for implementing these goals.

Goal	Evaluation	Person(s) responsible	Complete by

Part B: How can you meet challenges to restructuring?

Common challenges to changing instructional models are listed below. Work in your collaborative groups to DETERMINE what challenges you will face for each goal you selected in Part A, and BRAINSTORM some ways you might meet those challenges. You may add other challenges you may face in your school. (Possible challenges: Personal resistance, colleague resistance/peer pressure, student resistance, parental resistance, administrative/Board resistance/policies, community resistance,state/federal policies/mandates.)

Goals	Challenges	Ways to Overcome Challenges

Activity 2: Getting Started

Part A: How does modeling work?

One of the new teacher roles in a collaborative classroom is to model your thinking and thinking processes for students. Because people do most cognitive tasks automatically, it takes practice to reflect upon and verbalize your thinking for others.

1. FORM small groups (3-5 people per group). READ and DISCUSS the example of modeling. The excerpt is from an article on germs.

   Do Germs Get You?

   Example prediction:

   I think we will be reading about problems with germs, perhaps specific diseases they can cause. What other things [subtopics] might we read about germs? From my past experience, I know that many times when people get ill, it is because they have been exposed to germs. The article might discuss how to protect yourself from germs. I don't know if germs can ever help you, but I imagine the article will also talk about that. Maybe we'll also learn about different kinds of germs. It's okay if my prediction is totally or partially wrong because I can change my ideas as I read and get more information.

2. READ the title below. Each member should MODEL predicting what the article will be about. DISCUSS the experience of modeling in your group. (Each person may have different predictions.)

   Can People Use Garbage Over Again?

3. READ the following paragraphs. Each member should MODEL summarizing the text. This activity can be extended to other texts and other thinking processes.

Making mountains out of trash will solve the problem only for a short time because we are simply running out of places to put trash. There are ways to keep from being buried in wastes, but they require people to adopt a new attitude toward the things they discard.

The stuff we call trash, refuse, waste, rubbish, garbage, or junk is full of valuable materials. Instead of throwing all this material away, we should find ways to recycle it. But how?

We already recycle some materials. Nearly half of the copper products in the United States are made from scrap. Twenty-five percent of steel and paper is reused.

New industries are beginning to recycle other products, especially the bottles and cans that make up so much of the litter left in parks and along roads. Some communities are setting up recycling centers to collect aluminum and glass containers. The recycling centers sell the aluminum and glass to industries that may make them into new products.

Part B: How can educators collaborate to develop a collaborative unit?

FORM small groups (3-5 people per group). Each group should PLAN a unit on Garbage (or any other topic they may prefer). USE the unit plan below as a guide.

UNIT PLAN

Unit topic:

Your prior knowledge (What do you know about garbage and the problems of garbage?)

Unit goals	**Unit activities**	**Materials**
(What are your goals?)	(What will students do to attain those goals?)	(What print and non-print materials will students use?)

Student resources (How will you take advantage of students' prior knowledge and experiences to tie the unit to students' everyday lives?)

Parent/community resources (How will you take advantage of parent and community expertise?)

Teacher/student roles (How will students share authority and responsiblity for the unit; for example, setting goals, designing learning tasks, self-assessment?)

Facilitator (How will you mediate learning; for example, facilitating, modeling, coaching?)

Dialogue (What will be the role of dialogue in this unit? What are some questions that will foster discussion and avoid recitation?)

Assessment activities	**Responsible person(s)**
(How will you assess learning and collaboration?)	(Who will assess learning and collaboration?)

Part C: What resources and support will you need to implement collaboration?

CATEGORIZE resources and support you will need into those you already have and those you don't have. Then SPECIFY how and where you might obtain those you don't have.

Examples of resources:

Money - substitutes, materials

Time - release time for observing other teachers, release time for workshops, release time for problem solving/sharing sessions

Services - classroom volunteers, peer coaching

Resources and support you have	Resources and support you don't have	How and where to get resources

Activity 3: Continuing to Grow

Part A: How does the collaborative classroom fit with your current restructuring efforts?

DISCUSS and ANSWER the following questions. This activity can be done by a restructuring task force or by small groups of teachers, administrators, and community members.

1. What school-wide restructuring efforts have you implemented or are you planning?

2. In what ways are these efforts consistent or inconsistent with the characteristics of the collaborative classroom/school?

3. What revisions would bring your restructuring efforts more in line with the characteristics of a collaborative classroom/school (if they are not already)?

4. What other school-wide efforts should be initiated to develop a collaborative environment in your school?

Part B: How can you plan for school-wide changes?

Use the following chart to help plan school-wide changes. You may want to merge this chart with other plans you have for restructuring.

Goals	Activities	Person(s) responsible	Complete by

ADDITIONAL INFORMATION

Program Descriptions

1. The New Definition of Learning: The First Step for School Reform - The point of departure in thinking about restructuring is to consider a new definition of learning based on recent research in cognitive sciences, philosophy, and multicultural education. Positive attitudes toward learning, toward oneself, and toward others; a strategic approach to learning; and self-regulated learning are key goals emerging from this research. While these perspectives build on earlier approaches to active learning, they are "new" in contrast to traditional models of schooling. Also, it is especially important in our changing and changed society to promote meaningful learning among all students. The vision of meaningful learning developed for a restructured school will determine the curriculum objectives, classroom instruction, assessment, and the social organization of the school.

2. The Thinking Curriculum - If students are to engage in meaningful learning, numerous curricular issues must be addressed. A dual agenda must be implemented focusing both on enriched content and expanded notions of higher order thinking. Otherwise, students will learn isolated skills and facts as ends in themselves. If schools are to become communities of scholars, collaborative learning and the interpersonal skills needed to support it must become part of the curriculum. Activities to develop self-regulated learning and motivation must become part of the curriculum for students of all ages and abilities, but especially for students at risk and younger students. Finally, higher-order thinking and reasoning must pervade the curriculum from K-12.

3. The Collaborative Classroom: Reconnecting Teachers and Learners - If there are profound changes implied from the new definition of learning for what students learn, there are equally serious consequences for the roles of teachers in the classroom. Teachers will need to facilitate, mediate, model, guide, assist, share, listen, and adjust the amount of support provided. Moreover, many teachers will need to develop strategies for teaching diverse students within heterogeneous classrooms.

4. Multidimensional Assessment: Strategies for Schools - If the curriculum is to change, the current debate over the usefulness, or uselessness, of standardized tests is likely to be intensified. It makes little sense to redesign curricula to teach for understanding and reflection when the main assessment instruments in schools measure only the assimilation of isolated facts and effective performance of rote skills. Alternative assessment methods must be developed to evaluate and increase the capacity of learners to engage in higher order thinking, to be aware of the learning strategies they use, and to employ multiple intelligences. Alternative modes of assessment are valuable both to students in promoting their development and to teachers in increasing the effectiveness of their instruction.

5. Schools as Learning Communities - In schools that are learning communities, students' learning and teachers' instruction use the community and its resources. In addition, the schools promote learning as a lifelong activity for all citizens. As a result, community members increasingly spend more time in schools to learn, provide support services such as tutoring and teaching, and participate in school life. More and more, schools of the future will be places where administrators and teachers learn and work collaboratively. Schools as learning communities may also mean working with local businesses and agencies to provide increased support services to help students and their families become better learners.

6. Many Roads to Fundamental Reform in Schools: Getting Started - Teachers and administrators who form learning communities reflect as a group on schooling and learning—they probe their assumptions about learning, they debate what they see as essential in the educational experience, and they build consensus on what vision of learning will undergird their school's mission. Initiating a broad-based dialogue comparing learning that should occur to learning that is actually occurring is a first step in getting started. A broad-based dialogue includes community members, parents, teachers, administrators, and students. In furthering the dialogue, participants should pursue the implications of their new definition of learning for all dimensions of schooling—curriculum, instruction, assessment, school organization, and community relations.

7. Many Roads to Fundamental Reform in Schools: Continuing to Grow - If all participants in this school community are successful learners, then they know that the process of learning is ongoing and iterative. They know that schooling and learning are driving concepts that must be repeatedly developed in their meaning. Participants are continually learning and re-learning what the mission of the school is, what the vision of learning should be, how to realize this vision, and the many subtle ways the vision is impeded by organizational and attitudinal constraints. Formative evaluation of the restructuring process becomes "business as usual" for the school.

8. The Meaning of Staff Development in the 21st Century - Traditional roles of staff development for teachers and principals focusing on one-shot events are as outdated as traditional models of learning. Therefore, a major task of the restructuring movement is to align models of staff development with new visions of learning to allow teachers and administrators to plan together sustained, high-quality staff development programs. Video Conference 8 focuses on developing new roles for teachers and administrators based on research on expert teaching and staff development.

9. Reconnecting Students at Risk to the Learning Process - New visions of learning suggest that students who are academically at risk have been largely disconnected from the process of learning by segregation into poorly coordinated and impoverished remedial programs emphasizing drill on isolated skills. Research indicates that such students can be reconnected to the learning process by training regular classroom teachers to use teaching/learning strategies which are successful for students in heterogeneous classrooms and by providing them with dynamic assessments and highly enriched learning environments. Video Conference 9 highlights successful programs.

Computer Forums

Much of the value and excitement of participating in this video series arises from the opportunity to interact with presenters and share in the national dialogue on restructuring. Indeed, this dialogue is a primary goal of this professional development series. Yet, there is only so much time available to engage in such dialogue during each video conference. To participate in the continuing dialogue after each video conference, viewers can access LEARNING LINK, a computer conferencing system.

This system was developed for public television to increase the impact of distance learning. Using this system, members can:

- **Ask presenters questions** for one month after each video conference
- Talk to each other to **share experiences**, help solve problems, learn about resources, and ask for assistance
- Participate in "**discussion groups**" organized around specific topics such as the thinking curriculum
- **Access calendars** for events related to restructuring and teaching for thinking and understanding
- **Access new information** pertinent to the video series such as news items, alerts, and announcements of new publications
- **Search** user's communications for information and commentary on specific topics such as assessment
- **Survey** what others think about a given issue
- **Access large documents** that NCREL enters into the system (for example, articles and annotated bibliographies)
- **Exchange strategic plans** with others

Who Will Be Available to Address Questions and Comments?

NCREL and PBS have asked the presenters if they, or their staff, can be available for approximately one month after each video conference to answer additional questions. While we do not expect that all of the presenters will be available, we anticipate that there will be some from each conference in the series. A full-time conference moderator will be available from Indiana University at Bloomington. This person will be able to answer questions pertaining to all aspects of restructuring as well as to respond to technical questions and facilitate conference dialogue.

What Do I Need To Use LEARNING LINK?

All you need to apply is a microcomputer (any brand), a modem, and telecommunications software such as Apple Access 2, Apple Works, Procomm, or Red Ryder.

How Much Does LEARNING LINK Cost?

Regular account membership is $189.00 for 20 hours of access to the system. However, **DataAmerica** and **IBM** have partially underwritten the cost. The first 2,500 people to register will pay only $95.00 for 15 hours. Of these special $95.00 memberships, 1,500 will be reserved for persons in the NCREL region. Memberships will be processed on a first-come, first-served basis. For information,

phone:	or write:
Erica Marks	IntroLink
IntroLink	Learning Link National Consortium
(212) 560-6868	356 W. 58th St.
9:30-5:30 EST	New York, NY 10019

Note 1: While there may be nominal local connect charges, there will be no additional fees for long distance usage for hours of service purchased. This is true whether you pay $189.00 for 20 hours or $95.00 for 15 hours.

Note 2: Members currently using LEARNING LINK service do not need to apply. They are already eligible to participate in the service for this video series through their local LEARNING LINK system. For information, watch for announcements in your bulletin boards.

Remember: You must already have a microcomputer, a modem, and telecommunications software in order to access LEARNING LINK.

Materials

Video Conference **Guidebooks** include pre- and post-conference activities as well as other activities for various workshops. Activities are customized for different levels of knowledge. Some activities are introductory; others are more advanced. Each downlink site will receive one camera-ready master copy free of charge for local reproduction as part of the licensing arrangement.

Selected Readings include reprints of various articles and other information for each video conference. We have created a flyer, including an order form, for you to distribute. This form can be found at the end of this book. Two volumes of **Selected Readings** will be available for $15.00 each (plus shipping) from:

Zaner-Bloser, Inc.	(800) 421-3018
Customer Service	8:00 am - 4:30 pm EST
1459 King Avenue	Fax: (614) 486-5305
P.O. Box 16764	
Columbus, OH 43216-6764	

60

Course Credit Information

In the NCREL region (Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin), the National College of Education will offer two graduate hours of credit to:

- Groups of students using an approved on-site facilitator
- Individuals employing instructional services by telephone

For more information about credit in the NCREL region, please call Sonja Clary, Associate Dean for Off-Campus Programs, (708) 475-1100, ext. 2335.

In the fall of 1990, PBS Adult Learning Service will offer Restructuring to Promote Learning in America's Schools as a telecourse. For information, please call (800) 257-2578.

Local Involvement

Inside the NCREL Region

NCREL has identified local teams from each of its seven states to assist in implementing the video series. Teams include people in these areas: media, staff development, curriculum and instruction, and rural and urban education. Each team has developed its own implementation plan. Local PBS stations throughout the region will also be a part of the local outreach.

Outside the NCREL Region

You may want to generate activities similar to those in the NCREL region. Some suggestions:

- Your school or agency can provide immediate commentary and analysis at the local site after each video conference.
- Local colleges or universities may use the series as part of course requirements.
- State education agencies and/or other qualified agencies may provide continuing education credits, or equivalent, for participation in the series.
- Local and state education agencies may provide Leadership/Management Academy Workshops, study groups, and/or other workshops using the video series.
- Your school may provide school credits/career advancement for participation.

REFERENCES AND RESOURCES

Bibliography

Video Sources

Presenters' Biographical Information

Regional Resources

Bibliography

Alvermann, D. E., Dillon, D. R., & O'Brien, D. G. (1987). Using discussion to promote reaching comprehension. Newark, DE: International Reading Association.

Au, K. H., Crowell, D. C., Jordan, C., Sloat, K. C. M., Spiedel, G. E., Klien, T. W., & Tharp, R. G. (1986). Development and implementation of the KEEP Reading Program. In J. Orasanu (Ed.), Reading comprehension: From research to practice (pp. 235-253). Hillsdale, NJ: Lawrence Erlbaum Associates.

Brandt, R. S., & Meek, A. (Eds.). (1990). Cooperative learning [Entire issue]. Educational Leadership, 47(4).

Brown, A. L., Palinscar, A. S., & Purcell, L. (1986). Poor readers: Teach, don't label. In U. Neisser (Ed.), The academic performance of minority children: New perspectives (pp. 105-143). Hillsdale, NJ: Lawrence Erlbaum Associates.

Bruner, J. S. (1986). Actual minds, possible worlds. Cambridge, MA: Harvard University Press.

Cohen, E. G. (1982). A multi-ability approach to the integrated classroom. Journal of Reading Behavior, 14, 439-460.

Cohen, E. G. (1986). Designing group work: Strategies for the heterogeneous classroom. New York: Teachers College Press.

Collins, A., Brown, J. S., & Newman, S. E. (1989). Cognitive apprenticeship: Teaching the crafts of reading, writing, and mathematics. In L. B. Resnick (Ed.), Knowing, learning, and instruction: Essays in honor of Robert Glaser (pp. 453-494). Hillsdale, NJ: Lawrence Erlbaum Associates.

Dillon, J. T. (1984). Research on questioning and discussion. Educational Leadership, 42(3), 50-56.

Doise, W., Mugny, G., & Perret-Clermont, A. N. (1975). Social interaction and the development of cognitive operations. European Journal of Social Psychology, 5, 367-383.

Feuerstein, R., & Jensen, M. R. (1980). Instrumental enrichment: Theoretical basis, goals, and instruments. The Educational Forum, 46, 401-423.

Florio-Ruane, S. (in press). Instructional conversations in learning to write and learning to teach. In B. F. Jones & L. Idol (Eds.), Dimensions of thinking and cognitive instruction: Implications for educational reform. Hillsdale, NJ: Lawrence Erlbaum Associates.

Forman, E. A., & Cazden, C. B. (1986). Exploring Vygotskian perspectives in education: The cognitive value of peer interaction. In J. V. Wertsch (Ed.), Culture, communication, and cognition: Vygotskian perspectives. New York: Cambridge University Press.

Good, T. L., Reys, B. J., Grouws, D. A., & Mulryan, C. M. (1989/1990). Using work-groups in mathematics instruction. Educational Leadership, 47(4), 56-62.

Graves, D. H. (1983). Writing: Teachers and children at work. Portsmouth, NH: Heinemann Educational Books.

Greenberg, J. B. (1989, April). Funds of knowledge: Historical constitution, social distribution, and transmission. Paper presented at the annual meeting of the Society for Applied Anthropology, Session on Collaborative Research: Combining Community and School Resources to Improve the Education of Hispanics in Tucson, Santa Fe, NM.

Heath, S. B. (1982). What no bedtime story means: Narrative skills at home and school. Language Socialization, 11, 49-76.

Heath, S. B. (1983). Research currents: A lot of talk about nothing. Language Arts, 60, 999-1007.

Heath, S. B., & Branscombe, A. (1985). "Intelligent writing" in an audience community: Teacher, students, and researcher. In S. W. Freedman (Ed.), The acquisition of written language: Response and revision (pp. 3-32). Norwood, NJ: Ablex Publishing.

Herber, H. L. (1978). Teaching reading in content areas (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Herber, H. L. (1985). Developing reading and thinking skills in content areas. In J. W. Segal, S. F. Chipman, & R. Glaser (Eds.), Thinking and learning skills: Vol. 1. Relating instructions to research (pp. 297-316). Hillsdale, NJ: Lawrence Erlbaum Associates.

Huil, G. A. (1989). Research on writing: Building a cognitive and social understanding of composing. In L. B. Resnick & L. E. Klopfer (Eds.), Toward the thinking curriculum: Current cognitive research (pp. 104-128). Alexandria, VA: Association for Supervision and Curriculum Development.

Johnson, D. W., & Johnson, R. T. (1989). Cooperation and competition: Theory and research. Edina, MN: Interaction Book Company.

Johnson, D. W., Johnson, R. T., & Holubec, E. J. (1986). Circles of learning (2nd ed.). Edina, MN: Interaction Book Company.

Johnson, D. W., Johnson, R. T., & Holubec, E. (1987). Structuring cooperative learning: Lesson plans for teachers. Edina, MN: Interaction Book Company.

Johnson, D. W., Johnson, R. T., & Holubec, E. J. (1988). Cooperation in the classroom (rev. ed.). Edina, MN: Interaction Book Company.

Kamii, C., & DeVries, R. (1980). Group games in early education. Washington, DC: The National Association for the Education of Young Children.

Lindquist, M. M. (1987). Strategic teaching in mathematics. In B. F. Jones, A. S. Palincsar, D. S. Ogle, & E. G. Carr (Eds.), Strategic teaching and learning: Cognitive instruction in the content areas (pp. 111-134). Alexandria, VA: Association for Supervision and Curriculum Development.

Moll, L. C. (1989). Teaching second language students: A Vygotskian approach. In D. Johnson & D. Roen (Eds.), Richness in writing: Empowering ESL students (pp. 55-69). New York: Longman.

Moll, L. C. (in press). Literacy learning: A community mediated approach. In S. Silvern (Ed.), Literacy through family, community, and school interaction. Greenwich, CT: JAI Press.

Moll, L. C., & Diaz, S. (1986). Ethnographic pedagogy: Promoting effective bilingual instruction. In E. Garcia & R. Padilla (Eds.), Advances in bilingual education research (pp. 127-149). Tucson: The University of Arizona Press.

Moll, L. C., Diaz, E., Estrada, E., & Lopes, L. (in press). Making contexts: The social construction of lessons in two languages. In S. Arvisu & M. Saravia-Shore (Eds.), Cross-cultural and communication competencies. New York: Garland Press.

Moll, L. C., & Greenberg, J. B. (in press). Creating zones of possibilities: Combining social contexts for instruction. In L. C. Moll (Ed.), Vygotsky and education. Cambridge, MA: Cambridge University Press.

Mugny, G., & Doise, W. (1978). Socio-cognitive conflict and structure of individual and collective performances. European Journal of Social Psychology, 8, 181-192.

Palinscar, A. S., & Brown, A. L. (1985). Reciprocal teaching: Activities to promote "reading with your mind." In T. L. Harris, & E. J. Cooper (Eds.), Reading, thinking, and concept development: Strategies for the classroom (pp. 147-160). New York: The College Board.

Palinscar, A. S., & Brown, A. L. (1986). Poor readers: Teach, don't label. In U. Neisser (Ed.), The academic performance of minority children: New perspectives (pp. 105-143). Hillsdale, NJ: Lawrence Erlbaum Associates.

Palinscar, A. S., & Brown, A. L. (1989). Classroom dialogues to promote self-regulated comprehension. In J. Brophy (Ed.), Teaching for understanding and self-regulated learning (Vol. 1, pp. 35-71). Volume 1. Greenwich, CT: JAI Press.

Palinscar, A. S., Ransom, K., & Derber, S. (1988/1989). Collaborative research and development of reciprocal teaching. Educational Leadership, 46(4), 37-40.

Piaget, J. (1954). The construction of reality in the child. New York: Basic Books.

Rogers, T., Green, J. L., & Nussbaum, N. R. (in press). Asking questions about questions. In S. Hynds & D. Rubin (Eds.), Perspectives on talk and learning. Urbana, IL: National Council of Teachers of English.

Scardamalia, M., & Bereiter, C. (1985). Fostering the development of self-regulation in children's knowledge processes. In J. W. Segal, S. F. Chipman, & R. Glaser (Eds.), Thinking and learning skills: Research and open questions (pp. 563-577). Hillsdale, NJ: Lawrence Erlbaum Associates.

Schoenfeld, A. H. (1985). Mathematical problem solving. New York: Academic Press.

Schoenfeld, A. H. (1989). Teaching mathematical thinking and problem solving. In L. B. Resnick & L. E. Klopfer (Eds.), Toward the thinking curriculum: Current cognitive research (pp. 83-103). Alexandria, VA: Association for Supervision and Curriculum Development.

Slavin, R. E. (1987). Cooperative learning and the cooperative school. Educational Leadership, 45(3), 7-13.

Schmuck, R. A., & Schmuck, P. A. (1983). Group processes in the classroom. Dubuque, IA: Wm. C. Brown Company.

University of Chicago School Mathematics Project. (1990). Algebra. Glenview, IL: Scott Foresman.

University of Chicago School Mathematics Project. (1990). Transition mathematics. Glenview, IL: Scott Foresman.

Usiskin, Z. (1981). Decision-making in mathematics education. In L. A. Steen & D. J. Albers (Eds.), Teaching teachers, teaching students (pp. 43-55). Boston: Birkhauser.

Usiskin, Z. (1983). Policy implications of problem solving and mathematics learning. The School Administrator, 40(1), 33-35.

Usiskin, Z. (1985). We need another revolution in school mathematics. In Secondary School Mathematics (pp. 1-21). Reston, VA: National Council of Teachers of Mathematics.

Usiskin, Z. (1989). The sequencing of applications and modelling in the University of Chicago School Mathematics Project (UCSMP) 7-12 curriculum. In W. Blum, J. S. Berry, R. Biehler, J. D. Huntley, G. Kaiser-Messmer, & L. Profke (Eds.), Applications and modelling in learning and teaching mathematics (pp. 176-181). Chichester, England: Ellis Horwood, Ltd.

Velez-Ibanez, C. G. (1989, April). Transmission and patterning of funds of knowledge: Shaping and emergence of U.S. Mexican children in context. Paper presented at the Society for Applied Anthropology 1989 Annual Meeting, Santa Fe, NM.

Velez-Ibanez, C. G., & Greenberg, J. B. (1989, November). Formation and transformation of funds of knowledge among U.S. Mexican households in the context of the borderlands. Paper presented at the American Anthropological Association 1989 Annual Meeting, Washington, DC.

Velez-Ibanez, C. G., Greenberg, J. B., & Johnstone, B. (1984, February). The ethnic, economic, and educational structure of Tucson, Arizona: The limits of possibility for Mexican Americans in 1982. Proceedings of the 1984 Meeting of the Rocky Mountain Council on Latin American Studies, 1, 154-164.

Vygotsky, L. S. (1978). Mind in society. M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.). Cambridge, MA: Harvard University Press.

Vygotsky, L. S. (1986). Thought and language (rev. ed.). A. Kozulin (Ed.). Cambridge, MA: The MIT Press.

Wertsch, J. V. (1985). Vygotsky and the social formation of mind. Cambridge, MA: Harvard University Press.

Wood, D., Bruner, J., & Ross, G. The role of tutoring in problem-solving. Journal of Child Psychology and Psychiatry, 17, 89-100.

Video Sources

Learning Mediated Through Dialogue	This videotape was developed and copyrighted by NCREL (1990).
Incorporating Community Knowledge in Schools	This videotape was developed and copyrighted by NCREL (1990).
Applications in Mathematics	This videotape was developed and copyrighted by NCREL (1990).

Presenters' Biographical Information

Luis Moll

Luis C. Moll is Associate Professor at the College of Education, The University of Arizona. He has conducted educational research during the last 10 years in school, classroom, and community settings with Hispanic neighborhoods. His current work, an interdisciplinary project between Education and Anthropology, combines an analysis of the use and social distribution of knowledge within and among Hispanic households with the study and development of literacy instructional innovations in classrooms. This study, conducted in close collaboration with teachers, seeks to take full advantage of the students' and community's knowledge and resources in fostering the bi-literacy development of students. His forthcoming book, Vygotsky & Education: Instructional Implications and Applications of Sociohistorical Psychology, will be published by Cambridge University Press.

Annemarie Palincsar

Annemarie Palincsar is Associate Professor in Curriculum, Teaching, and Psychological Studies at the University of Michigan. Dr. Palincsar's research began with the development and investigation of reciprocal teaching. This procedure has been investigated with middle-school students and as an initial literacy experience with first-grade students at risk for academic difficulty. Dr. Palincsar has published articles and chapters on comprehension instruction, strategy instruction, dialogic instruction, and peer collaboration. She served as advisor to the Children's Television Workshop designing a literacy learning program for primary grade children. Her current research interests include the co-investigation of a National Science Foundation project on peer collaboration in scientific problem solving for the purpose of teaching for conceptual change and self-regulation in science learning. In addition, she is collaborating on the development and implementation of an integrated literacy curriculum with primary grade special education students, funded by the Office of Special Education and Rehabilitative Services.

Dannelle Stevens

Dannelle D. Stevens, an advanced doctoral candidate at Michigan State University, started graduate school after seven years of public school teaching. In graduate school, she has been involved in five federally-funded research projects. Her research experience includes analysis of classroom socialization practices, investigation of the acquisition of reading and writing strategies, and examination of teacher and student learning processes when using thinking strategies in collaborative groups. She has been working with Annemarie Palincsar over the last two years on a project in an urban school in Detroit. This project is designed to help teachers learn how to promote strategic learning through collaborative groups. From her research involvement in graduate school, she has authored nine publications and over developed fifteen conference presentations.

Zalman Usiskin

Zalman Usiskin is Professor of Education at the University of Chicago. Professor Usiskin has written dozens of articles on mathematics and mathematics education as well as textbooks for all high school grade levels. He has directed government-supported projects on the subjects of first-year algebra, applying arithmetic, and cognitive development in geometry. He has taught high school mathematics classes during many of his years at Chicago. Since 1983, he has been involved in the University of Chicago School Mathematics Project, the largest university-based school mathematics education project in the country. Since the inception of the project, he has directed the secondary component, which has been developing an entire mathematics curriculum for students in grades 7-12. In 1987 he became overall director of the project. He is a member of the Mathematical Sciences Education Board, a committee of the National Research Council that is attempting to coordinate efforts to improve mathematics education in our country. He is also on the advisory board of the Children's Television Workshop program, Square One TV.

Carlos G. Velez-Ibanez

Carlos G. Velez-Ibanez is the Director of the Bureau of Applied Research in Anthropology, and Professor of Anthropology, Department of Anthropology, The University of Arizona. He has also served as Associate Dean of the faculty of the Social and Behavioral Sciences at the same instituion and, prior to 1982, was associate professor of Anthropology, University of California. He specializes in urban and political anthropology with areas of interest in Latin America, India, and the U.S. Southwest. Professor Velez-Ibanez has received numerous awards and grants from the Office of Bilingual and Minority Language Affairs, U.S. Department of Commerce/Bureau of the Census, the National Science Foundation, Rockefeller and Ford Foundations, as well as Distinguished Phillips Visitor, Haverford College. He is a Fellow, Center for Advanced Study in the Behavioral Sciences, Stanford, California; and a Visiting Associate, Smithsonian Institution. He is a member of the executive committee of the American Anthropological Association and a member of the Smithsonian Folklife Advisory Council.

Regional Resources

1. Jane Hange, Director
   Classroom Instruction Program
   Appalachia Educational Laboratory
   1031 Quarrier Street
   P.O. Box 1348
   Charleston, WV 25325
   (304) 347-0411

2. Stanley Chow
   Inter-Laboratory Collaboration
   Far West Laboratory
   1855 Folsom Street
   San Francisco, CA 94103
   (415) 565-3000

3. Larry Hutchins, Executive Director
   Mid-continent Regional Educational Laboratory
   12500 E. Iliff, Suite 201
   Aurora, CO 80014
   (303) 337-0990

4. Beau Fly Jones, Program Director
   North Central Regional Educational Laboratory
   295 Emroy
   Elmhurst, IL 60126
   (708) 941-7677

5. Janet M. Phlegar
   The Regional Laboratory for Educational Improvement
   of the Northeast and Islands
   300 Brickstone Square, Suite 900
   Andover, MA 01810
   (508) 470-1080

6. Rex W. Hagans
   Director of Planning and Service Coordination
   Northwest Regional Educational Laboratory
   101 S.W. Main Street
   Suite 500
   Portland, OR 97204
   (503) 275-9543

7. Peirce Hammond, Deputy Director
   Southeastern Educational Improvement Laboratory
   200 Park, Suite 200
   P.O. Box 12748
   Research Triangle Park, NC 27709
   (919) 549-8216

8. Preston Kronkosky, Executive Director
   Southwest Educational Development Laboratory
   211 East Seventh Street
   Austin, TX 78701
   (512) 476-6861

9. John E. Hopkins, Executive Director
   Research for Better Schools, Inc.
   444 N. Third Street
   Philadelphia, PA 19123
   (215) 574-9300, ext. 201

ORDER FORM

For ordering items below, please send check or purchase order along with order form to:

NCREL Publications Department
295 Emroy Avenue
Elmhurst, IL 60126

Qty.	Price	Code	Title/Author
____	$10.00	HST-703	Dimensions of Thinking: A Framework for Curriculum and Instruction, 1988. Robert J. Marzano, Ronald S. Brandt, Carolyn Sue Hughes, Beau Fly Jones, Barbara Z. Presseisen, Stuart C. Rankin, and Charles Suhor.
____	$10.00	HST-705	Strategic Teaching and Learning: Cognitive Instruction in the Content Areas, 1987. Beau Fly Jones, Annemarie Sullivan Palincsar, Donna Sederburg Ogle, and Eileen Glynn Carr.
____	Free	VTC-101	Video Teleconferencing: A Potentially Powerful Vehicle for Staff Development, 1987, article by Beau Fly Jones.
____	$ 6.00	TC-109	Managing Instruction for Equity and Excellence (Facilitator's Manual), 1989. Beau Fly Jones (Editor).
		*0-8058-0346-7	Dimensions of Thinking and Cognitive Instruction Beau Fly Jones and Lorna Idol.
		*0-8058-0364-5	Educational Values, Cognitive Instruction: Implications for Reform Lorna Idol and Beau Fly Jones.

* For pricing and ordering information, contact Customer Service, Lawrence Erlbaum Associates, 365 Broadway, Hillsdale, NJ 07642, (201) 666-4110.

For ordering items below, please send check or purchase order to:

Zaner-Bloser, Inc.
1459 King Avenue
P. O. Box 16764
Columbus, OH 43216-6764

Customer Service: (800) 421-3018
8:00 AM to 4:30 PM EST
Fax: (614) 486-5305

$5.50 + shipping — Restructuring to Promote Learning in America's Schools: A Guidebook. (Bound) (Please specify **Guidebook 1, 2,** or **3.**)

$15.00 + shipping each volume — Restructuring to Promote Learning in America's Schools: Selected Readings. (Volumes I & II)

Transcripts of the video conferences can be ordered for $6.00 each from:

Smith Business Automation School
Transcript Services Department
1313 East Sibley Ave.
Dolton, IL 60419

NORTH CENTRAL REGIONAL
EDUCATIONAL LABORATORY
295 Emroy Avenue
Elmhurst, IL 60126

TO:

SELECTED READINGS FOR

Restructuring to Promote Learning in America's Schools

Restructuring to Promote Learning in America's Schools is a series of nine 2-hour video conferences. The Selected Readings is a collection of articles compiled by the North Central Regional Educational Laboratory (NCREL) for the video series.

Readings provide video conference participants, and others interested in reconceptualizing America's schools, with a research base focused on the heart of schooling: the vision of learning that drives curriculum, instruction, and assessment.

To order, mail the card below or phone Zaner-Bloser, Inc., at (800) 421-3018, 8:00 a.m. - 4:30 p.m., EST. [FAX: (614) 486-5305)]

_____
_____
_____

Zaner-Bloser, Inc.
Customer Service
1459 King Avenue
P.O. Box 16764
Columbus, OH 43216-6764

Restructuring to Promote Learning in America's Schools
SELECTED READINGS

Volume I contains:

INTRODUCTION

Educational Restructuring and School Improvement - *Hunter Moorman* and *John Egemeier*

The Importance of Restructuring to Promote Learning - *Beau Fly Jones*

An Ideascape for Education: What Futurists Recommend - *Steve Benjamin*

THE NEW DEFINITION OF LEARNING

Learning and Thinking - *Beau Fly Jones, Annemarie Sullivan Palincsar, Donna Sederburg Ogle,* and *Eileen Glynn Carr*

The Educational Challenge of the American Economy - *Sue E. Berryman*

Language Development and Observation of the Local Environment: First Steps in Providing Primary-School Science Education for Non-Dominant Groups - *Lillian Weber* and *Hubert Dyasi*

The Cultivation of Reasoning Through Philosophy - *Matthew Lipman*

Toward the Thinking Curriculum: An Overview - *Lauren B. Resnick* and *Leopold E. Klopfer*

THE THINKING CURRICULUM: NEW LEARNING AGENDAS IN SCHOOLS

Education, Citizenship, and Cultural Options - *James A. Banks*

What Is Reading? - *Commission on Reading*

Principles for an Elementary Mathematics Program for the 1990s - *Thomas A. Romberg*

Assess All Five Domains of Science - *Robert E. Yager*

Essentials of Social Studies - *National Council of Social Studies*

THE COLLABORATIVE CLASSROOM: RECONNECTING TEACHERS AND LEARNERS

Research Currents: A Lot of Talk About Nothing - *Shirley Brice Heath*

Some Key Issues in Teaching Latino Students - *Luis C. Moll*

Interactive Teaching to Promote Independent Learning from Text - *Annemarie Sullivan Palincsar* and *Ann L. Brown*

MULTIDIMENSIONAL ASSESSMENT: STRATEGIES FOR SCHOOLS

Beyond the IQ: Education and Human Development - *Howard Gardner*

Teaching to the (Authentic) Test - *Grant Wiggins*

Portfolio Assessment: Sampling Student Work - *Dennie Palmer Wolf*

Issues in Special Education - *Richard Figueroa* and *Christine Amato*

Volume II, addressing **Schools as Learning Communities: Many Roads to Fundamental Reform: Getting Started: Many Roads to Fundamental Reform: Continuing to Grow: The Meaning of Staff Development in the 21st Century;** and **Reconnecting Students at Risk to the Learning Process,** will be available in April 1990.

RESTRUCTURING TO PROMOTE LEARNING IN AMERICA'S SCHOOLS: SELECTED READINGS

To expedite shipping, use this card to indicate quantity and provide purchase order number. (Purchase order can be mailed later.) Or if you prefer, enclose purchase order with this form in an envelope and mail to address on reverse side. Shipping charges will be added.

	Quantity	Total @ $15ea. (Shipping extra)	Purchase Order #
Volume I	_____	$_____	
Volume II	_____	$_____	_____
(back order)		75	

Name_____ Title_____

Institution_____

Complete street mailing address_____

City_____ State_____ ZIP_____